

Mortgage Performance and Housing Market Discrimination

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Abstract

This analysis¹ examines claims that observed patterns of mortgage default rates by race can be used to make inferences about racial discrimination in household access to mortgage credit. The analysis concludes that observed higher default rates for black households provide no evidence at all about discriminatory treatment in mortgage lending.

In a series of well-crafted empirical papers, Berkovec, Canner, Gabriel, and Hannan (BCGH, 1993, 1994) have provided new evidence about determinants of default on residential mortgages and about loan losses arising from defaults. These studies were based upon previously unexploited data sources maintained by the U.S. Department of Housing and Urban Development (HUD) on individual loans insured by the Federal Housing Administration (FHA). A large sample of FHA loans was matched to borrower characteristics by HUD and to neighborhood (census-tract) characteristics by the researchers.

Empirical analyses based on these data document the importance of loan-to-value ratios, borrower income and assets, demographics, and neighborhood housing market characteristics in affecting default propensities. The authors do not provide a new theoretical model of the default calculus, but the results they report are broadly consistent with contingent claims theories of default and the importance of “trigger events” in conditioning default (Vandell, 1993; Quigley and Van Order, 1995).

The careful analysis by BCGH provides a credible set of facts describing the behavior of more than 200,000 mortgage holders during the late 1980s and early 1990s. This work reveals the differences in average default rates by race. For example, for FHA-insured loans originated in 1987, the statistical model implies that, other things being constant, black borrowers have default rates that are about 2 percentage points higher than those of white households. This finding is credible because many other factors are held constant and because the result is generally robust to alternative specifications.

Recently, the authors have argued forcefully that this result casts doubt on findings by other researchers of discrimination against blacks in the home mortgage market (BCGH, 1995; Berkovec and Gabriel, 1995). This argument has been reported in the

popular press. An article entitled "... [BCGH] Study Challenges Claims of Loan Bias ..." appeared in the *American Banker* on January 25, 1995, and "Study by [BCGH] Challenges the Contention of Minority Bias in Mortgage Lending" appeared in the *Wall Street Journal* on January 26, 1995.

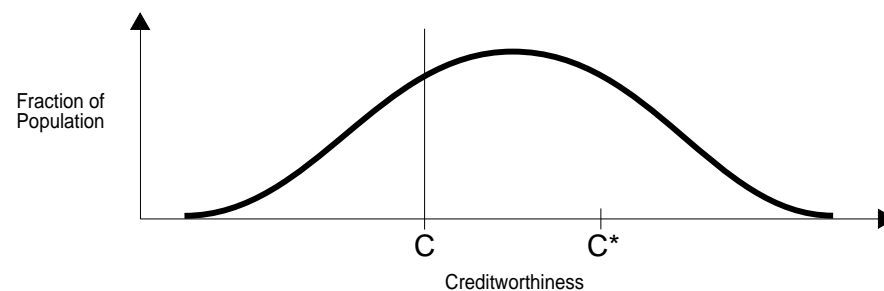
This important inference, although drawn from a carefully executed empirical analysis of FHA loan data, is incorrect. The finding of disparities in default rates for black and white borrowers says nothing at all about discrimination in the housing or mortgage market.

The erroneous inference seems to have arisen from a confusion between the credit characteristics of marginal and average borrowers. This problem is compounded by the common usage of the term "marginal" in applied economic work to refer to the partial effect, holding other factors constant, of a variable such as race on an outcome measure such as default in a multivariate statistical model.

Figure 1 shows the distribution of creditworthiness in a population; that is, the before-the-fact probability distribution of loan repayment. The lender sets a level of creditworthiness (C) that maximizes profits, accepting all loan requests from applicants with creditworthiness greater than C and rejecting others.²

Figure 1

Distribution of Creditworthiness in a Hypothetical Population



The average probability of repayment (C^*) is the mean of the truncated distribution to the right of C , but the probability of repayment by the borrower whose creditworthiness is at the margin is C .

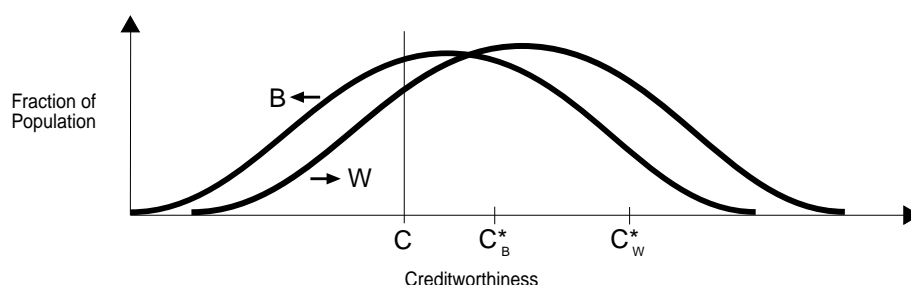
Suppose the population were divided randomly into two groups, W and B , and it were observed that $C_w^* > C_B^*$. The argument of BCGH would have us infer that $C_w > C_B$. In their view, the finding that the average repayment probability for loans issued to W is higher than the average repayment probability for loans issued to B is not consistent with the imposition of a higher credit standard for B individuals. "Higher average default rates for blacks are not consistent with the discriminatory imposition of a higher underwriting standard for blacks," they argue.

But dividing the population into two groups by race is not the same as dividing the population randomly. A large number of investigators have concluded that minority households have lower average creditworthiness than white households.³ Figure 2 illustrates this fact by presenting the distributions of creditworthiness in the two populations.

The distribution of creditworthiness for group B lies to the left of the distribution for group W. As the figure is drawn, the imposition of a common underwriting standard (C) implies that $C_w^* > C_B^*$. In this circumstance, by simple stochastic dominance, the average repayment probability for loans issued to W borrowers must exceed the average repayment probability for loans issued to B borrowers.

Figure 2

Distribution of Creditworthiness in Two Hypothetical Populations



However, the evidence amassed by BCGH indicates only that $C_w^* > C_B^*$. But as is clear from figure 2, this need not reveal anything at all about the underwriting standards applied to W and B applicants. Only if $C_w^* \leq C_B^*$ would we know that Bs were held to a higher underwriting standard than Ws. The BCGH finding that the average default rate for loans issued to white borrowers is lower than the average default rate for loans issued to black borrowers is consistent with equal underwriting standards, with higher underwriting standards for black borrowers, and even with higher underwriting standards for white borrowers.

A great deal is made of the effect of omitted variables on the interpretation of the default model. (See especially Galster, in this issue, and Yinger, in this issue.) My assessment is straightforward: Creditworthiness (C) is measured with error. Credit scores used by institutions as inputs in lending decisions are derived from a large set of factors (Z) including, for example, measures of the extent of an applicant's previous borrowing and record of ontime loan repayment.

The race or sex of an applicant may not be used as a component of Z , for such action constitutes discrimination per se. Indeed, it is precisely this behavior—using race as a credit screen—that is illegal under Title VIII of the Civil Rights Act of 1968 and under the Equal Credit Opportunity Act of 1974. The finding that accepted minority applicants default at a higher (or lower) rate than other borrowers provides no evidence about explicit and illegal use of race as a screen in assessment of creditworthiness.

Regardless of the presence or absence of this form of illegal statistical discrimination, the set of conditioning variables (Z) is likely to be incomplete. This has an impact on interpretation of default models if the omitted factors are correlated with race. Suppose, for example, that an omitted factor predicting the likelihood of default is correlated with minority status. Then, in the absence of discrimination, observed default rates for successful minority applicants will be higher. If discrimination is present, the observed default rates for minority loans will be lower than they would have been without discrimination. However, the rates may be higher or lower than those of nonminority borrowers.

Such conditions hardly constitute a testable implication of default studies. Many important aspects of behavior about the default experience of successful mortgage applicants can be learned from studies such as that of BCGH. However, these studies cannot reveal much about racial discrimination in the housing market.

More than two decades ago, John Kain and I published an analysis (1972) of differences in home purchase and homeownership behavior by black and white households in St. Louis, suggesting that “simple capital market discrimination” was one of the principal causes (p. 270). An avalanche of empirical analyses of the homeownership market followed, beginning with McDonald’s (1974) analysis of Detroit and continuing to the present. Wachter and Megbolugbe (1992) provide a comprehensive review of this voluminous literature. The findings of these studies—for example, that the home purchase probabilities of “otherwise comparable” black households are substantially lower than those of white households—have never been seriously questioned.

In 1977 HUD undertook the Housing Market Practices Survey, the first nationwide audit of housing market practices and housing market discrimination (Wienk et al., 1979). During the 1980s, many similar audits took place, culminating in the Housing Discrimination Study commissioned by HUD in 1988 (Turner, Struyk, and Yinger, 1991). The overwhelming conclusion of these studies is that “otherwise comparable” black and white housing investors and consumers experienced differential treatment in the housing market. (See Fix and Struyk, 1993, and Cloud and Galster, 1993, for reviews of these studies.)

Several studies have analyzed the disposition of mortgage loan applications made by “otherwise identical” black and white households. Building on work by Shafer and Ladd (1981) and by Black, Schweitzer, and Mandell (1978), Munnell et al. (1992) analyzed some 2,800 mortgage loan applications in the Boston area. Consistent with previous work, they found significant differences in the probability of loan acceptance by race. Although the Boston study was considered controversial, an exhaustive re-analysis of the data by Carr and Megbolugbe (1993) confirms the essential findings.

Each of these approaches to identifying discrimination in mortgage lending—analyses of housing market outcomes, analyses of individual treatment by brokers and lenders, and analyses of credit applications—has shortcomings. It is notoriously difficult to hold numerous factors constant so that inferences can be made about “otherwise comparable” economic factors.

Despite such difficulties, the weight of the evidence is overwhelming. The findings of housing market discrimination are not open to serious doubt. Nothing in the work of Berkovec, Canner, Gabriel, and Hannan leads me to change my prior assessment.

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John Quigley is a professor of economics and public policy at the University of California, Berkeley. He also serves as a research associate at Berkeley’s Center for Real Estate and Urban Economics. His current research involves the integration of real estate, mortgage, and financial markets; urban labor markets; and local public finance. He is the author of eight books and more than 80 scientific publications. Dr. Quigley is also the editor of RSUE, a journal of urban and regional economics.

Notes

1. Financial support for the preparation of this analysis was provided by the Fisher Center for Real Estate and Urban Economics, University of California, Berkeley.
2. The lender could charge different fees to applicants based on some estimate of C, but this does not characterize institutions in the residential mortgage market, which does not even price discriminate by loan-to-value ratio. Thus the market conditions are tolerably close to those posited by Stiglitz and Weiss (1981).
3. These points are made by Ferguson and Peters (1995) and VanOrder and Zorn (1995).

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