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Publication Date

1995-10-01

Peer reviewed



Institute of
Business and
Economic Research

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Berkeley

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WORKING PAPER SERIES

WORKING PAPER NO. 95-242

**MORTGAGE PERFORMANCE AND
HOUSING DISCRIMINATION**

By

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Mortgage Performance and Housing Market Discrimination *

by

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Working Paper No. 95-242

October 1995

* This analysis was prepared at the request of the Assistant Secretary for Policy Development and Research, US Department of Housing and Urban Development. Financial support was provided by the Fisher Center for Real Estate and Urban Economics, University of California, Berkeley.

Mortgage Performance and Housing Market Discrimination

ABSTRACT

This analysis 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.

Mortgage Performance and Housing Market Discrimination

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In a series of well crafted empirical papers, Berkovec, Canner, Gabriel, and Hannan ("BCGH," 1993, 1994) have provided new evidence on the determinants of default on residential mortgages and on the loan losses arising from defaults. These studies have been based upon heretofore unexploited sources of data maintained by the Department of Housing and Urban Development (HUD), namely 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.

The 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.

One finding that arises from this work is the difference in average default rates by race. For example, for FHA-insured loans originated in 1987, the statistical model implies that -- other things constant -- black borrowers have default rates that are about two percentage points higher than the default rates of white households. This finding is credible because many other things are held constant and because the result is generally robust to alternative specifications.

Recently, the authors have argued forcefully that this latter result casts doubt upon findings by others of discrimination against blacks in the home ownership market (BCGH, 1995a, 1995b. See also Berkovec and Gabriel, 1995). This argument has found its way into the popular press, with articles titled "[BCGH] Study Challenges Claims of Loan Bias," in the *American Banker* (January 25, 1995) and "Study by [BCGH] Challenges the Contention of Minority Bias in Mortgage Lending," in the *Wall Street Journal* (January 26, 1995).

This important inference 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 the marginal versus the average borrower. This is compounded by the common usage of "marginal" in applied work to refer to the partial effect, holding other factors constant, of one variable (e.g., race) upon some outcome measure (e.g., default) in a multivariate statistical model.

Figure 1 shows the distribution of "creditworthiness" in some population, that is, the *ex ante* probability distribution of loan repayment. The lender sets a level of creditworthiness C which maximizes profits, accepting all loan applicants with creditworthiness greater than C and rejecting others.¹

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 $C_W > C_B$. They argue: The finding that the average repayment probability for loans

¹ The lender could charge applicants different fees based upon 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).

FIGURE 1

Fraction of
Population

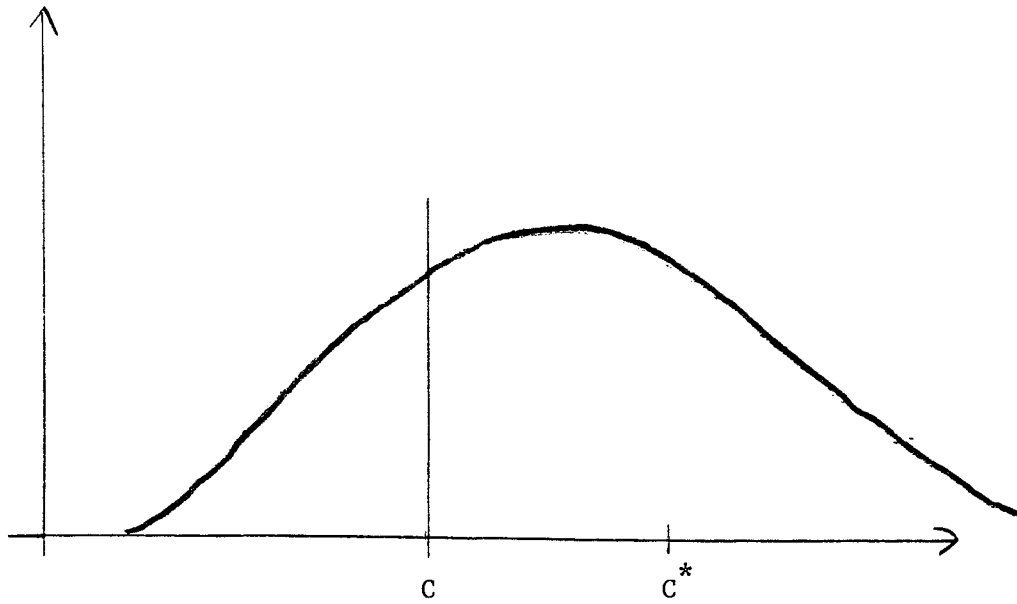
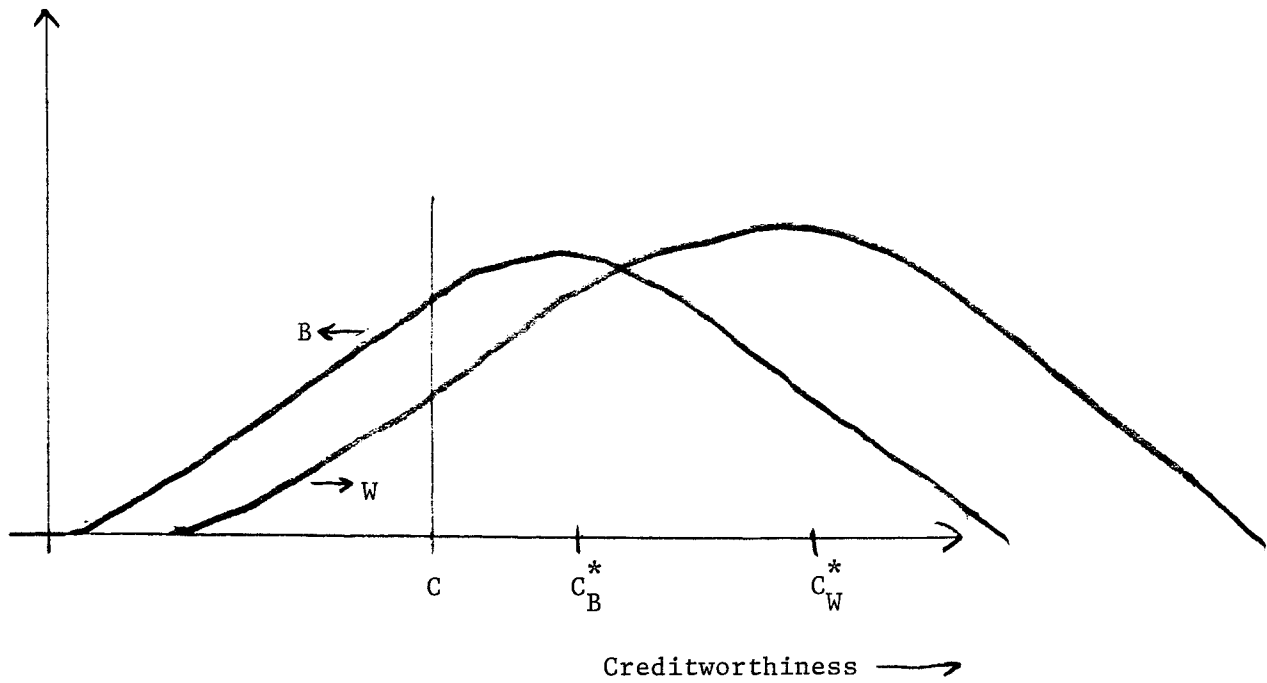


FIGURE 2

Fraction of
Population



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.")

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

The distribution of creditworthiness for group B lies to the left of the distribution of 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.

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 B's were held

² These points are made by Ferguson and Peters (1995) and VanOrder and Zorn (1995).

to a higher underwriting standard than W's. BCGH's finding that the average default rate for loans issued to white borrowers is less than the average default rate for loans issued to black borrowers is consistent with equal underwriting standards, with higher underwriting standards for black borrowers, or 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, 1995, and Yinger, 1995). My assessment is pretty straightforward. Creditworthiness, C, is measured with error. Credit "scores" used as inputs by institutions 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 the applicant's record for on-time repayment.

The race or sex of an applicant may not be used as a component of Z -- this constitutes discrimination per se. Indeed, it is precisely this behavior, the use of 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 borrowers default at a higher (or lower) rate than other borrowers provides no evidence at all about the explicit and illegal use of race as a screen in the 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 a real consequence in interpreting 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. In the presence of discrimination, the observed default rates for minority loans will be lower than they would have been absent discrimination. However, they may be higher or lower than those of non minority borrowers.

This is hardly a testable implication of default studies.

There are many important aspects of behavior that can be learned from studies such as BCGH of the default experience of successful mortgage applicants. However, we cannot learn very much about racial discrimination in the housing market.

More than two decades ago, John Kain and I published an analysis (1972) of black-white differences in home purchase and homeownership behavior by St. Louis households, suggesting (pg. 270) that "simple capital market discrimination" was one of the principal causes. There followed an avalanche of empirical analyses of the homeownership market beginning with McDonald's (1974) analysis of Detroit and continuing up to the present. Wachter and Megbolugbe (1992) provide a comprehensive review of this voluminous literature. The findings of these many 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 called into question.

In 1977, the Housing Market Practices Survey, the first nationwide audit of housing market practices and housing market discrimination, was undertaken (see Wienk et al, 1979). During the decade of the 1980's, a large number of similar audits were sponsored, culminating in the Housing Discrimination Study commissioned by HUD in 1988 (see Turner, Struyk, and Yinger, 1991). The overwhelming conclusion of these studies is that "otherwise comparable" black and white housing investors and consumers were afforded differential treatment by housing market actors (see Fix and Struyk, 1993, and Cloud and Galster, 1993 for reviews of these studies). The findings of housing market discrimination are not open to serious doubt.

More recently, 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 Black, Schweitzer, and Mandell (1978), Munnell et al (1992) analyzed some 2,800 mortgage loan applications in the Boston area. They found, consistent with previous work, significant differences in the probability of loan acceptance by race. This latter study was considered controversial, but an exhaustive re-analysis of the data by Carr and Megbolugbe (1993) confirms the essential findings.

Each of these approaches -- analysis of housing market outcomes, analysis of individual treatment by brokers and lenders, and analyses of credit applications -- has its difficulties. It is notoriously difficult to hold other things constant so that inferences can be made about "otherwise comparable" economic actors.

Despite these difficulties, in my view the weight of the evidence from these sources is overwhelming. Nothing in the work of Berkovec, Canner, Gabriel, and Hannan leads me to change my prior assessment.

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