Do Lenders Discriminate in Processing Defaults?

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Abstract

A major criticism leveled against the Berkovec, Canner, Gabriel, and Hannan (BCGH) study of potential lending discrimination is that there are significant unobservable influences that could bias their results against a finding of discriminatory behavior. Two of the three critics maintain that, among these unobservable influences should be a higher incidence of foreclosure for minorities, conditional on loan default, which would explain the BCGH findings. This article examines that question in detail and finds that the postdefault foreclosure experience of minorities is very similar to that of nonminorities, and that lenders tend to give minorities more (rather than less) time to work out their situation before commencing foreclosure. These findings are robust across a number of dimensions, nullifying the above-mentioned critiques of BCGH. However, the article also points out methodological weaknesses that still leave doubts as to the validity of the BCGH results.

Critiques of the Focal Study

In the focal article of this volume, "Discrimination, Default, and Loss in FHA Mortgage Lending," Berkovec, Canner, Gabriel, and Hannan (BCGH) use a large data set of single-family, FHA-insured loans to examine default rates and losses by borrower race. Their objective is to follow up on implications of the Boston Federal Reserve Bank study of mortgage discrimination (Munnell et al., 1992) by testing the hypothesis that nonstatistical discrimination in mortgage lending will be most pronounced at the margin of loan eligibility and that its existence should therefore lead to lower default rates and losses for minority borrowers at that margin. The BCGH results appear to rule out such discrimination, because minority borrowers have statistically higher default rates than comparable white borrowers and losses on defaulted loans to minorities are greater than those on loans to white borrowers.

These findings are not conclusive—as duly noted by BCGH; critics Ross, Galster, and Yinger; and commenters Yezer, Breuckner, Quigley, and Bradford and Shlay—because

a number of issues have not been controlled for. In particular, BCGH point out in their summary that:

- There are unobserved determinants of default which, if correlated with race, will bias the results toward, not away from, the null hypothesis of no discrimination.
- The analysis tests only for the possibility that there may be nonstatistical discrimination caused by the use of differential credit standards across racial groups in the loan approval process. If broad-based statistical discrimination exists, their test would not detect it.
- Their results could be caused by differential treatment of African-American borrowers at the time of loan default, through faster and more certain foreclosure.

The first issue, the role of unobservables, is covered extensively by the critics and commenters of the BCGH article. They do not, however, give BCGH credit for attempting to measure the differences in lender-observed influences on the relative credit profiles of whites and minorities by using an index developed by Munnell et al. (1992). Thus the problem of differential distributions of unobserved (or unmeasured) variables between whites and minorities is not likely to be as detrimental as indicated by the critics and commenters. The second issue—that the BCGH results are unimportant because of the persistence of statistical discrimination—has now been strongly dismissed by the work of Hunter and Walker (1996) in their revisit of the Munnell et al. (1992) Boston study. Hunter and Walker respecify the statistical model used in the Boston study and find great potential for discrimination at the margin of loan qualification but no wholesale statistical discrimination of all minority applicants.[1] The final issue, whether the BCGH results might in some way be tainted by discrimination at the default stage, is an attractive argument to both Ross and Yinger, as evidenced in their critiques of the BCGH piece. Yinger develops this line of thinking to the point of citing it as a fatal flaw in the BCGH methodology. His only evidence, however, consists of two journalistic reports that deal with a potential irregularity in the issuance of second mortgages to unqualified borrowers who have significant home equity. That topic is unrelated to the issue of the way lenders treat defaulted first mortgages.

Default and Foreclosure

In this article we provide a more in-depth analysis of the dynamics of borrower default and race, because it is potentially the greatest remaining source of uncertainty regarding the validity of the BCGH results. Such an analysis of lender behavior in initiating foreclosure on defaulted borrowers also speaks to the importance of the first potential weakness of the BCGH study. Yinger maintains that differential experience in mortgage default should be a prime indicator of the value of unobserved borrower characteristics. He presupposes that minority borrowers have fewer resources to draw upon in times of financial difficulties; therefore, they should experience higher foreclosure rates conditional upon default than should nonminorities. His conclusion is that the BCGH result is invalid, given (but not proven) that the unobserved credit characteristics of minorities are of lower quality.

As discussed by Ambrose and Capone (forthcoming) and mentioned by many of the critics and commenters in this debate, borrower default does not necessarily result in foreclosure. Fewer than 40 percent of the 90-day defaults on Federal Housing Administration (FHA)-insured mortgages end in foreclosure. Other default outcomes (see table 1) include loan reinstatement (54 percent); sale of the property (5 percent); and, for FHA mortgages, long-term forbearances through the FHA mortgage assignment program

(4 percent). If lenders do discriminate at the point of loan default, systematic differences would be found in default forbearance provided to white and minority borrowers. Evidence that minority borrowers in default are foreclosed on faster and more often than white borrowers in default would suggest that lenders are providing white borrowers with greater forbearance and that such discrimination could be skewing the BCGH results. Our examination of FHA data does not support this hypothesis; thus we dismiss the third argument against the validity of the BCGH approach to analyzing the potential for nonstatistical discrimination in mortgage origination. Our findings also weaken what remains of the first argument (the problem of unobservables). However, we do not conclude that the BCGH results are necessarily valid. Our concerns are methodological and, therefore, potentially correctable. They are not philosophical ones that negate the use of default analysis in testing for potential discrimination. In this regard, we are most closely aligned with Tony Yezer among the critics and commenters.

Table 1

Default History of FHA Mortgages Originated in 1988
(Through First Quarter of 1994)

	Frequency	Percentage
Mortgage status:		
No default	117,258	85.5
Defaulted	19,832	14.5
Total	137,090	100.0
Default outcome:		
Reinstate	10,584	53.4
Sale	947	4.8
Assignment	850	4.3
Foreclosure	7,451	37.6
Total	19,832	100.1

Default and Foreclosure Data

Our data set parallels that of the BCGH study and consists of excerpts from the U.S. Department of Housing and Urban Development's (HUD's) Single Family Default Monitoring System (SFDMS) and from the HUD mortgage characteristics files used by BCGH. SFDMS tracks all borrowers who are in default on their FHA mortgages for 90 days or more. Lenders are required to report these borrowers to HUD and to provide status updates until the cases are resolved. Archived files provide information on closed cases and are used here to recreate histories of loans in default, both the amount of time-in-default and the frequency of default periods.

All records of mortgages originated in 1988 have been identified and matched with the SFDMS records to determine those that were in default between 1988 and the first quarter of 1994.[2] After eliminating cases with incomplete information, we have a sample of 137,090 insured mortgages. Of these, 19,832 (14.5 percent) were reported as being in default at least once between 1988 and 1994. From these data we are able to track the outcomes of each default, which we then categorize as cured (that is, the owner resumed making payments or sold the property), assigned to HUD, or foreclosed. Table 1 shows the breakdown of mortgages originated in 1988 by default status and by default outcome.

Descriptive Analysis

As a comparison, BCGH use a somewhat smaller sample of 79,304 mortgages originated during 1988 with a reported default rate of 4.4 percent. The 14.5-percent default rate we report is substantially higher than theirs, due to differences in definitions of default. BCGH restricted their analysis to foreclosed mortgages, whereas we have included all borrowers who were delinquent by 90 days, the effective point of default in the mortgage industry.[3] An examination of the distribution of defaults by outcome reveals that 5.4 percent of the 14.5 percent defaulted mortgages in our sample resulted in foreclosure, while another 7.7 percent of the borrowers reinstated their mortgages. Therefore, the foreclosure rate from our data compares favorably with the default rate reported by BCGH, although our sample has 1 additional year of loan seasoning (from mid-1993 to mid-1994), which accounts for the slightly higher cumulative foreclosure rate.

Table 2 shows a breakdown of the sample by default status and race. Minority borrowers comprise 33 percent of the total 1988 mortgage originations but 42.1 percent of the borrowers who subsequently defaulted between 1988 and 1994. Minority borrowers have a default rate of 18.5 percent, compared with the white borrowers' default rate of 12.5 percent (see table 3). These figures are consistent with the findings by BCGH that minority borrowers have higher rates of distress that lead to defaults than do white borrowers.[4]

Table 2

Racial Characteristics of FHA Mortgages Originated in 1988
(Column Percentages are Reported in Parentheses)

Mortgage History (Through First Quarter of 1994)			
Race	No Default	Default	Total
White	80,440.0	11,476.0	91,916.0
	(68.6)	(57.9)	(67.0)
Minority	36,818.0	8,356.0	45,174.0
	(31.4)	(42.1)	(33.0)
Total	117,258.0	19,832.0	137,090.0
	(85.5)	(14.5)	(100.0)

Table 3 reports the mean values of borrower income at origination, property value at origination, loan to value (LTV) ratio at origination, and default rates for white and minority borrowers. It is important to note that while the t-tests for differences in mean values between these two racial groups are statistically significant, the differences are economically insignificant. For example, white borrowers have a mean LTV of 91.6 percent, which is *statistically* lower than the mean LTV of 91.8 percent for minority borrowers, yet the economic content of each variable is identical across the groups.

Table 4 provides sample means and t-test results for the difference in means of characteristics of white and minority borrowers who defaulted on their mortgages. The results indicate that white borrowers who defaulted had, at origination, statistically lower income and statistically higher property values than did minority borrowers who defaulted, while their LTV ratios at origination were no different. The combination of these three variables suggests that the marginal white borrower is more likely to have a higher debt coverage

Table 3

Descriptive Statistics and Difference-of-Means Test Statistics for FHA Mortgages Originated in 1988

	White	Minority	t-statistic
Income at origination	$ 37,174.00	$ 36,340.00	-7.6***
House value at origination	$ 62,052.00	$ 60,443.00	-11.0***
LTV at origination	91.62%	91.84%	5.0***
Default rate[a]	12.49%	18.50%	28.3***

[a]Through the end of first quarter 1994.
*** Indicates statistical significance at the 1% level.

ratio than the marginal minority borrower, providing potential evidence of nonstatistical discrimination: Lenders appear to be more willing to stretch underwriting ratios for whites than for minorities. This is the same result found by Hunter and Walker (1996) for conventional loans.

One of our greatest disappointments with the BCGH work is that they failed to exploit the possibilities of their statistical tools to analyze potential minority/nonminority differences for borrowers who default. They did not compute default probabilities for marginal borrowers to compare them with average borrowers, nor did they compare default probabilities between African Americans and whites. Their work failed to include interactive terms that could identify the source of racial differences in default propensities, and they did not compute the marginal probabilities that would have shown the economic significance (or insignificance) of their findings.[5] Their categorization of borrowers as marginal was incomplete and was given little attention in both the text and the statistical model. As their study was intended to focus on marginal borrowers and racial differences in the borrowers' probabilities of default at the margin of loan eligibility, BCGH failed to achieve their mission.[6]

Table 4

Descriptive Statistics and Difference-of-Means Test Statistics for FHA Mortgages Originated in 1988 That Defaulted at Least Once[a]

	White	Minority	t-statistic
Income at origination	$ 26,142.00	$ 34,120.00	4.0***
House value at origination	$ 50,838.00	$ 44,197.00	-14.6***
LTV at origination	92.78%	92.77%	-0.1
Time in default (months)	7.18	7.57	3.4***
Time to default (months)	38.50	37.60	-3.5***
Reinstatement rate	52.60%	53.70%	1.2
Property sales rate	5.60%	3.60%	-6.2***
Assignment rate	4.30%	4.50%	0.7
Foreclosure rate	37.40%	38.20%	1.1

[a]Data through end of first quarter 1994.
*** Indicates statistical significance at the 1% level.

We have compared the default outcomes of minority and white borrowers by calculating rates of reinstatement, property sale, assignment, and foreclosure for those in default (see table 4). Only the property sales rate varies in a meaningful way; whites have a 5.6-percent sales rate and minorities have a 3.6-percent sales rate. In general, this should be explained by differences in house price appreciation rates. The number of months in default is calculated as a proxy for the level of lender forbearance. The results show that minority borrowers remain in default longer than white borrowers, which suggests that, if anything, lenders are more lenient toward minority borrowers in foreclosure processing. If lenders are discriminating against minority borrowers after a loan is made, higher foreclosure rates and shorter forbearance times for minority borrowers would be expected. The absence of these outcomes leads us to rule out statistical discrimination at the default stage. At the same time, longer default times for minorities help to explain how BCGH could estimate higher loss rates for minorities in foreclosure. In the end we fail to reject the null hypothesis that the rates of reinstatement, assignment, and foreclosure are equal across racial groups.

The loss-rate results of BCGH should be read with caution. First, their positive coefficient for African Americans disappears once census tract characteristics are considered. Second, their loss-rate equations have very small numbers of observations relative to the total number of FHA foreclosures, which may indicate that the data are from a small number of cities in which HUD field office staff coded this data into the loan characteristics files. If BCGH had obtained a more complete data set on loss rates from FHA rather than relying on this limited information set, a more reliable loss-rate analysis could have been employed. Foreclosure cost data are maintained by FHA in a database different from the one used by BCGH. Third, it appears that they included all foreclosures that had been recorded up to the time of their data cut. To do so is problematic, because the costliest foreclosures are those that take the longest to execute. Hence the BCGH results are then biased to the extent that loan seasoning (that is, time since origination) places the majority of expected defaults in the year immediately preceding the BCGH data cut. Thus many loans, in the foreclosure pipeline appear in the BCGH data as nondefaulted (that is, current) loans, because they are still actively insured. If white borrowers have higher population densities in States with longer foreclosure times (northern States), then the BCGH results of higher loss rates for African Americans could reflect a lack of costly foreclosure completions for whites. BCGH attempt to proxy for State foreclosure times with State dummies, although they do not report the statistical results. This is an inadequate means of addressing a known variable. In order to have a clean analysis of loss rates, the analysis sample must be truncated at least 18 months prior to the data cut to allow time for all foreclosures to be processed and properties disposed of.

Table 5 reports mean months-in-default and mean relative time-in-default for white and minority borrowers by default outcome. Relative time-in-default is defined as the borrower's number of months-in-default divided by the mean number of months-in-default for all borrowers in the same State. This variable provides a relative measure of the borrower's time-in-default as compared with the default experience for all borrowers in that State. The results indicate that both the mean months-in-default and the relative measure of default time for white and minority borrowers are equal for the reinstatement, preforeclosure sale, and assignment outcomes. However, our analysis again shows that minority borrowers are allowed to remain in default, on average, a full month longer than white borrowers before foreclosure occurs. In addition, we have calculated the mean months-in-default, based on whether the average time-in-default for the State is generally short or long (see table 6). A State is classified as having a short time-in-default if the typical default time before foreclosure is fewer than, or equal to, 6 months. Again, with the exception of borrower reinstatement in short-time States, the results confirm that

minorities have longer time-in-default in States with both typically short and long time-in-foreclosure. The results reported in tables 5 and 6 suggest that lenders actually extend greater forbearance to minority borrowers in default than to whites before ultimately foreclosing. This result implies that lenders do not discriminate against minority borrowers in default.

Table 5

Mean Months-in-Default and Difference-of-Means Test Statistics for White and Minority Borrowers by Default Outcome

	Mean Months-in-Default			Mean Relative Time-in-Default		
	White	Minority	t-statistic	White	Minority	t-statistic
All defaults	7.18	7.57	3.4***	0.97	1.04	4.2***
Reinstate	2.84	2.71	-1.6	0.39	0.38	-0.7
Sale	6.25	6.65	1.0	0.87	0.94	1.2
Assignment	8.35	8.63	1.1	1.13	1.20	1.7*
Foreclosure	13.30	14.40	5.8***	1.79	1.95	6.6***

*** Indicates statistical significance at the 1% level.
* Indicates statistical significance at the 10% level.

Table 6

Mean Months-in-Default and Difference-of-Means Test Statistics for White and Minority Borrowers by Mean State Foreclosure Time

	Mean Months-in-Default in States Where Typical Foreclosure Times Are Less Than or Equal to 6 Months			Mean Months-in-Default in States Where Typical Foreclosure Times Are More Than 6 Months		
	White	Minority	t-statistic	White	Minority	t-statistic
All defaults	6.823	7.033	1.7*	7.876	8.508	2.7***
Reinstate	2.865	2.708	-1.8*	2.774	2.714	-0.4
Sale	6.188	6.350	0.4	6.374	7.291	1.0
Assignment	8.544	8.690	0.4	8.013	8.510	1.3
Foreclosure	12.091	12.764	3.7***	15.873	17.246	3.8***

*** Indicates statistical significance at the 1% level.
* Indicates statistical significance at the 10% level.

Summary

The purpose of this article has been to explore the issue of default and discrimination in greater detail in order to shed light on one potential area of weakness in the BCGH study. Specifically, we tested the hypothesis that discrimination may occur in the way lenders process mortgages in default. There is consensus among BCGH and the critics and commenters that such discrimination may exist and that, if it does, it will negate the validity of the BCGH findings. Our results show that minority borrowers in default have statistically longer time-in-default, suggesting that lenders offer minority borrowers greater

default forbearance by allowing them to remain in default longer than white borrowers. This finding is contrary to the hypothesis that there is discrimination because of shorter time-in-default for minority borrowers. In addition, we document that the foreclosure rate is consistent for both minority and white borrowers in default. That is, lenders are not seeking to foreclose quickly on minority borrowers, nor are they extending default periods for white borrowers. This conclusion also contradicts the hypothesis that minorities have shorter time-in-default and higher foreclosure rates because of characteristics—unobservable at loan origination—that reduce their inherent credit qualities below those of whites, as argued by the BCGH critics.

If, as Munnell et al. (1992) and Hunter and Walker (1996) argue, lenders screen out marginally qualified minorities at the time of loan origination, a default study looking for nonstatistical discrimination should find that minority borrowers, at the margin, have lower rates of 90-day defaults. We agree with Anthony Yezer that BCGH have not answered this question. These data on postdefault performance of loans show that, while minorities have higher rates of reported defaults, they have roughly the same postdefault foreclosure rates as whites. This fact, combined with an analysis showing that lenders do not systematically discriminate against minorities in the default-resolution process, removes one major criticism of the use of default studies in examining discrimination in loan originations.

We find evidence of nonstatistical discrimination toward marginally qualified loan applicants through an implication in the default data that FHA lenders provide more flexible debt-to-income ratios to white borrowers than to minority borrowers. Hunter and Walker find strong evidence of this phenomenon in the conventional market. BCGH should have used their FHA loan origination data to explore these types of issues more closely and to define and analyze marginal borrowers more carefully.

The major methodological critiques appear to be based on weak suppositions. Yet we do concur with Ross that a more accurate default study would control for contemporaneous factors in order to isolate the marginal influence of underwriting variables known at the time of loan origination. BCGH attempt to do this only through State-specific dummy variables which, they assert, proxy for economic conditions and foreclosure processes. Either of these influences would be better measured by data on economic conditions and average foreclosure times, both readily available. The lessons from the Hunter and Walker (1996) study are that interactions between race dummy variables and quantitative variables are very helpful in discerning the source of potential discriminatory behavior. BCGH fail to explore this interaction and also fail to exploit the power of logistic modelling by not computing and contrasting total and marginal probabilities for truly marginal borrowers by race. Therefore, while we agree with the usefulness of the BCGH approach, we too remain skeptical of their results, although for very different reasons than most of the critics and commenters in this volume.

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Notes

1. Hunter and Walker refer to this phenomenon as statistical discrimination against marginal applicants, but their use of the term differs from that of authors in this volume. The Hunter and Walker findings support the need for BCGH-type research, focusing on the performance of borrowers at the margin of qualification.

2. We chose 1988 because the SFDMS was established in 1988 and, as mentioned by BCGH, characteristics files are incomplete for years prior to 1988. The sample stops with 1988 originations in order to track borrower default experience for as long as possible. By limiting the analysis to 1988 mortgage originations, we can also compare our results directly with those obtained by BCGH for their 1988 subsample.

3. Legal default, under the terms of the mortgage note or deed of trust, occurs when any one payment is missed by 30 days. However, foreclosure is generally not a viable alternative until after 90 days of delinquency, when the default nomenclature is employed by lenders.

4. For the purpose of statistical analysis, all nonwhite borrowers are classified as minority. While Asian borrowers do not experience measurable discrimination at loan origination, their presence here is small, and including them with other minorities fits well with the affinity hypothesis put forward by Hunter and Walker (1996).

5. One of the improvements Hunter and Walker (1996) bring to the original Boston study of discrimination in mortgage approvals is the use of interactive terms to pinpoint the sources of discriminatory behavior.

6. Quigley, in his review of BCGH and the critics, mistakenly says that BCGH focus on marginal effects rather than on marginal borrowers. While it is true that BCGH do not provide a complete treatment of marginal borrowers, they also stop short of analyzing marginal effects by not computing total and marginal probabilities.

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