

# Rejoinder to Berkovec, Canner, Gabriel, and Hannan

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## Abstract

*This rejoinder addresses the response to articles by Berkovec, Canner, Gabriel, and Hannan. While our earlier comments emphasized the biases in the default approach, we focus here on the basic disagreement: whether, given those biases, the default approach provides a viable test for mortgage lending discrimination. We argue that the default approach does not provide such a test.*

The Berkovec, Canner, Gabriel, and Hannan research (BCGH, 1994 and in this issue) provides a careful empirical look at racial differences in loan default rates using data on Federal Housing Administration (FHA) mortgages. In this rejoinder, however, we focus on the key issues that separate us. First, we express our deep concerns about the basic conclusion of the BCGH article; then, with those concerns in mind, we suggest a change in future default specifications. In addition, we discuss the problems inherent in their suggestion that default rates may be useful for partitioning the observed incidence of racial discrimination into two different types: statistical and prejudiced based.

Our fundamental disagreement with BCGH centers around the following statement, which is found in their article (in other words) and appears in their response to our critiques: "... FHA loan performance data do not support a finding of widespread systematic discrimination in mortgage lending due to lender prejudice." Although they acknowledge that their approach may suffer from a variety of biases and cannot prove that discrimination does not exist, they argue that proof is too high a standard for any empirical test. In response, we propose an alternative standard: Performance analyses should not be used to identify discrimination in mortgage lending unless it is demonstrated that these analyses are at least as effective as relevant alternative analyses, such as traditional analyses based on loan approval data. We conclude that the default approach fails to meet this standard under virtually all circumstances.

Consider the two key assumptions referred to by BCGH as *no omitted variable* bias and *no statistical discrimination*. The first assumption implies that all unobserved variables known to the lender are uncorrelated with race. If that is not so, the BCGH results are biased away from finding discrimination. In this case, BCGH point out—and we agree—loan application studies are also biased, and the bias is in favor of finding discrimination.

If the omission of certain variables known to the lender were the only problem, loan approval studies would have no methodological advantage over default studies—at least in principle. In practice, however, all default studies, including those by BCGH, lack several control variables that are present in the Boston Federal Reserve Bank data set, including credit history. Thus, even in this simple example, default studies have not attained equal standing with existing loan approval studies as a method to test for discrimination.

Ironically, complete data on the borrower characteristics observed by the lender, which obviously would eliminate omitted variable bias associated with these factors, cause yet another problem for default studies. Technically, minority borrowers have a lower propensity to default than white borrowers in the BCGH model because of a selection bias that arises when lenders use more stringent requirements for minorities, but a researcher cannot observe all of the variables lenders use to rank applicants. When the researcher is able to observe all the variables, the selection bias disappears—as does the lower default propensity for minorities. BCGH dismiss this point as “irrelevant,” because “existing models of lending decisions do not come close to explaining all of the variance in loan decisions.” In fact, however, this point does not require lender decision models with perfect explanatory power; it only requires complete data on borrower characteristics. Such data could yield a model of loan approval that falls far short of perfect explanatory power because of unobserved differences in lending practices across institutions, across lending officers, and over time. In short, a move toward eliminating omitted variable bias creates a new problem for the default approach (but not for the loan approval approach), namely the elimination of the testable hypothesis: minorities’ lower propensity to default.

The assumption that BCGH refer to as “no statistical discrimination” is a source of considerable disagreement and confusion. First, they do not actually assume that there is no statistical discrimination; rather, they assume that no variables that are unobserved by the lender and influence default are correlated with race. Without this assumption, the default approach faces a second omitted variable bias, one associated with an incentive for lenders to hold African-American applicants to a higher standard—statistical discrimination. If these omitted variables are correlated with race, the correlation may mask the effect of discrimination on default, regardless of the reason for the discrimination. While approval-based studies cannot distinguish between statistical and prejudiced-based discrimination, they provide an overall test for discrimination that does not suffer from this second type of omitted variable bias, because characteristics that are not observed by the lender cannot form a legal basis for lending decisions. Therefore, the default approach fails the standard of “equivalent ability to identify discrimination” when compared with tests based on approval data.

In addition, BCGH add more confusion to the discussion of statistical discrimination by claiming that “some would question whether it qualifies as discrimination.” Readers should not be misled by this remark. The key question is whether lenders engage in illegal behavior, a synonym for discrimination to most people. The word games that some economists play, giving the impression that statistical discrimination is not really a problem, are out of place in BCGH’s serious, if flawed, attempt to measure discrimination.

The only conclusion that can be drawn from the findings of BCGH is that the total amount of discrimination in the lending industry, regardless of the reason, does not create a sufficiently select sample of approved African-American loans to counteract true racial differences in propensity to default. Or, as stated by BCGH: “Results indicate that the extent of the bias [due to discrimination] is not large enough to overwhelm any ‘true’ differential in expected loan performance.” Our disagreement with BCGH arises because they emphasize their conclusion that racial differences in default are not consistent with

the existence of discrimination due to prejudice, rather than the more conservative conclusion we have presented in the preceding sentence. An absence of lending discrimination due to prejudice is but one possible interpretation of their findings. Their article presents no evidence to distinguish that interpretation from equally reasonable ones, such as the conclusion that some lenders obey the law, some engage in statistical discrimination, and others engage in discrimination due to prejudice. Thus we believe that the last sentence of their response, which contends that they can reject the possibility of “systematic racial bias,” is not only incorrect but is also inconsistent with their own analysis.

Can a default analysis ever be used to examine mortgage lending discrimination? The standard we applied to approval-based studies is that a reasonable and thorough effort must be made to control for all key variables that are observed by lenders and are expected to influence default or lender profitability. Similarly, for a default analysis to be taken seriously as a test for discrimination, the analysis must make an effort to control for all key variables that influence default, regardless of whether or not they were observed by the lender. In other words, a credible effort must be made to eliminate both sources of omitted variable bias. BCGH attempt to control only for those sources that were observable by the lender. In fact, most key events that lead to default are not observable at loan origination, because they have not yet occurred; for example, a period of borrower unemployment or a reduction in the value of the property. Default analyses that do not control for these events suffer from substantial omitted variable bias of the second type, and we believe that they should be discounted as tests for discrimination due to prejudice.

After indirectly acknowledging many of these problems, BCGH argue that performance studies are still valuable, because they might be used to distinguish between statistical and prejudice-based discrimination. This is an interesting idea and an important question, but it is not clear how it supports their principal conclusion or how the suggestion would be implemented. The authors suggest incorporating an instrument for the probability of unemployment, arguing that evidence of statistical discrimination has been found if inclusion of this instrument decreases the positive relationship between race and default. As before, we believe that they have not carefully distinguished between omitted variable bias and statistical discrimination. If inclusion of an omitted variable meaningfully alters the coefficient estimates, the earlier specification, by definition, suffers from omitted variable bias.

Incorporation of an instrument for the probability of unemployment provides no information about statistical discrimination, because it sheds no light on lender behavior. Since the probability of unemployment is expected to have a direct effect on default, the coefficient of this probability is the true relationship with default minus the selection effect caused by lenders holding high-employment-risk individuals to a higher standard on all other criteria. The size of the selection effect might provide information on the importance that lenders place on the probability of unemployment, but this effect is not identified and cannot be estimated in a simple default equation. It would make more sense to include the probability of unemployment in a loan approval specification, where the relationship between the probability of unemployment and lender behavior can be estimated directly. Moreover, even if the selection effect could be measured, the effect is due to all observed variables that influence the probability of unemployment and are correlated with race. A measure of statistical discrimination should consider the effect of race only when it is used as a signal for variables that are unobserved by the lender.

Finally, any attempt to distinguish between discrimination due to prejudice and statistical discrimination must contain recognition that both types of discrimination may follow the same model. In both cases, discrimination can be modelled as lenders holding minorities

to a higher standard. The key questions are: How much higher will profit-maximizing lenders set the standard for minority loan applicants? Do a significant portion of lending institutions or individual loan officers hold minorities to an even higher standard? The first question can be answered only with an estimate of the relationship between race and default that is corrected for sample selection. The second question requires consistent estimates of discrimination that vary across individual lending institutions or lending officers. Neither of these estimates is available at this time. In fact, distinguishing between a world in which all lenders maximize profits and one in which lenders can choose among obeying the law, maximizing profits, or indulging their prejudice requires information on the variance in racial differences in loan approval. Estimating the variance would be difficult as long as the profession is deeply divided over estimates of the mean racial difference in loan approval.

BCGH contend that whatever the limits of their study may be, the default approach is worth pursuing as a way to test for discrimination. This assertion may yet prove to be true, but the authors have not made their case. Moreover, the argument distracts from a more pressing question, namely, whether their study provides evidence that systematic racial bias is not a factor in loan approval decisions. In our critiques and in this rejoinder, we have tried to make it clear that the answer to this question is an emphatic “no.” With the methods currently available, the default approach cannot isolate the impact of prejudice-based or any other type of discrimination on loan performance.

## References

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