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PROVISION OF FINANCIAL SERVICES

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ABSTRACT

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Although there was a paucity of supporting evidence when amending the Equal Credit Opportunity Act, Congress assumed that differences between blacks and whites in the use of financial services was due to discrimination. This study does not find statistical support for the hypothesis that discrimination exists in the extension of credit. In addition, statistical results do not lead the authors to reject the hypothesis that racial discrimination in financial services is nonprofit maximizing and, therefore, is thwarted by the market. The results suggest that the legislation has been not only ineffective, but also unnecessary.

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James T. Lindley, Edward B. Selby, Jr., and John D. Jackson*

The Equal Credit Opportunity Act of 1975 was amended in 1976 to expand the prohibition on discrimination in the extension of credit to include race, color, religion, national origin, and age. While studies have shown that differences exist between blacks and whites in capital accumulation (Terrell) and in the use of financial services (Lindley and Selby), they have not concluded that the differences constituted racial discrimination in the supply of financial services. Evidence presented in support of the original Equal Credit Opportunity Act appears to have been statistically deficient in demonstrating discrimination based on sex. Richard Peterson, in 1981, concluded "that commercial banks did not systematically discriminate against potential borrowers based upon their sex before ECOA was passed" (p. 560).

Testimony alleging racial discrimination in credit extension was given to Congress when it considered the 1976 amendment and to the Federal Reserve when it was in the process of promulgating Regulation B (Board of Governors, 1976, p. 243). Again, no statistical evidence supporting claims of racial discrimination was given. Despite the paucity of statistical evidence supporting the notion that financial institutions racially discriminate in the extension of credit, Congress acted as if such discrimination were pervasive.

The mood of Congress is reflected by the statement in the Congressional Record of Representative Frank Annunzio of Illinois.

Mr. Speaker, there is far too much discrimination in the granting of credit in today's economic marketplace. And this discrimination must be eliminated.... [W]hy should a woman be denied the opportunity to open a charge account solely because she is black....

In far too many cases, however, lenders merely reject or place great negative weight on factors such as age, race, color, creed, religion, or national origin of credit applicants [p. 3726].

The amendment was reported out of the Banking, Currency, and Housing Committee by a vote of 36 to 0 and was passed into law in 1976.

Review of the Annual Report of the Board of Governors of the Federal Reserve for the years 1976-1981 reveals that between two and four percent of the complaints to the enforcing agencies alleged racial discrimination.¹ Such a small number of complaints casts further doubt on the pervasiveness of discrimination in the supply of financial services, particularly the supply of credit. And, in view of the significant administrative costs involved, the small number suggests a potential misallocation of resources.

Economic theory predicts that discrimination is a nonmaximizing activity in the face of competitive markets unless it is based on consumer prejudice. Consumer prejudice exists when, for example, white customers refuse to patronize an institution which accepts black customers (or conversely). If such a situation exists, the institution would have a profit maximizing incentive to practice racial discrimination.

Discrimination based on the prejudice of the "manager" of the financial institution, however, can be maintained only as long as the firm is earning monopoly rents (Alchian and Kessel).² If financial services are competitive, market forces will either push the discriminating institution out of business

or force it to accept black customers in order to stay in business. Thus, legislation prohibiting racial discrimination in the extension of credit is warranted if consumer prejudice exists or if financial institutions are earning monopoly rents and are choosing to discriminate. Empirical attempts to measure the existence or absence of racial discrimination usually consist of observing either a significant coefficient on a race variable in a single estimated equation or residual differences between black-white equations. Unfortunately, these procedures often shed little light on the discrimination issue.

In this paper an attempt is made to examine the discrimination issue by considering more than race variables or residuals. Since economic theory shows that the existence of discrimination is inconsistent with competitive markets except in special cases, the burden of proof lies with those who suggest the existence of discrimination. The task is to determine if there is evidence which supports a claim of discrimination. Rather than concentrating only on the race variable, the paper focuses upon the conditions which would be expected if discrimination in financial services existed and then statistically tests to determine if those conditions exist.³ In addition to the existence of a significant race variable, the conditions involve the degree of difference, if any, between discrimination in transaction services and in credit services and the direction of change in the importance of the race variable over time.

The financial services offered by financial institutions can be divided into two types--transaction services (e.g., checking accounts and savings accounts) and credit services (e.g., loans and credit cards). Given that an institution has a profit maximizing incentive to discriminate, it will tend to do so to a greater extent in the provision of credit than in transaction

services. This result can be expected for two reasons. First, the role, length, and detail of the application for credit provide a much greater opportunity to discriminate. Second, since credit extension activities constitute the larger source of revenue to the institution, the institution's opportunity cost of not discriminating in the face of consumer prejudice would be considerably greater for credit extension than for transaction services.

In order to support the claim that discrimination exists in the supply of financial services, black-white differences in the use of financial services must be significant. Given that discrimination is more likely to exist where there is the greatest ability to discriminate and the largest return from practicing discrimination, these racial differences should be more pronounced in bank loans and credit cards (as opposed to savings and checking accounts). Finally, if discrimination existed in the early 1970's, comparative data in later years should show a decrease in the importance of race as a determinant of financial usage, thereby, reflecting legal and social changes which have occurred.

Given the above, there are three testable hypotheses, (1) is the race variable significant, (2) are racial differences more pronounced in credit variables than in transaction variables, and (3) is there a decline in the importance of race over time? If there is no statistical support for these three hypotheses, the case for discrimination in the extension of credit is extremely weak. Given that the burden of proof is to show discrimination, not the reverse, lack of statistical support for the three hypotheses presents the strongest case one can make from statistical inference--namely, there is not significant statistical support for the hypothesis that racial discrimination exists in the extension of credit. This, in turn, lends tacit support to the

argument that racial discrimination in financial services is not profit maximizing and therefore is thwarted by the market.

I. Data Collection and Empirical Methodology

Under the assumption that an individual's intensity of preference for the use of a financial service is a function of his economic and demographic characteristics, we employ data collected from two temporally distinct surveys, one taken in 1971 and the other in 1979. Both surveys collected data from randomly selected households in the Atlanta, Georgia area using a cluster sampling technique. The 1971 sample contained 285 usable responses out of 321 interviews, and the 1979 sample contained 163 usable responses out of 181 interviews. The sample area contained, in addition to a number of competitive white-owned financial institutions, a black-owned bank and a black-owned savings and loan association, both long established.

The data contain both quantitative and qualitative variables. All of the qualitative variables are dichotomous. These variables are 1 or 0 for the use or nonuse of the particular financial service, 1 for car and house ownership and 0 for nonownership, and 1 for male-headed households and 0 for female headed households. The remaining variables, household income, education level attained by the household head, age, and household population are of ratio strength.⁴

The intensity of an individual's preference for the use of a particular financial service is not directly measurable; all that can be observed is whether or not the individual uses the service. Thus, we are faced with the problem of estimating the probability of an individual employing a particular financial service while being interested specifically in the impact of race on this probability. We therefore employ the ordered N-Chotomous probit model

developed by Richard McKelvey and William Zavoina and most recently applied in the finance literature by Richard Dietrich and Robert Kaplan (1982) and Robert Kaplan and Gabriel Urwitz (1979). Since it was designed explicitly to handle the problems created by qualitative dependent variables, it is well suited to the analysis of the dichotomous data on financial services collected in the 1971 and 1979 surveys. Furthermore, since the parameter estimates are maximum likelihood estimates, they are known to be asymptotically normally distributed allowing for standard statistical tests to investigate the hypotheses posited earlier.

II. Impact of Race on Financial Variables

To determine the degree of statistical support for the hypotheses outlined above, the data were examined in three ways. First, the data were analyzed with conventional probit analysis incorporating a dummy variable for race as an explanatory variable. Next, the data were examined by estimating equations containing the race dummy and race interaction variables. Finally, the data were examined by estimating equations containing a time dummy and time interaction variables.

For the first two situations, six equations were estimated for the 1971 data and six equations for the 1979 data with the same set of independent variables. The dependent variables in each of the six equations were (1) checking accounts, (2) bank savings accounts, (3) other savings accounts, (4) bank loans, (5) bank credit cards, and (6) other credit cards, respectively. The independent variables were (1) income, (2) head of household age, (3) head of household sex, (4) head of household education, (5) population of the household, (6) car ownership, (7) house ownership, and (8) race. All estimated equations converged and were significant at the 95 percent level

using a chi-square test recommended by McKelvey and Zavoina. To create a time dummy variable and time interaction variables, the 1971 and 1979 data were pooled resulting in a set of six equations with the above dependent and independent variables.

The dependent variables were divided into two categories, "Most Likely To Discriminate" which includes credit based services (bank loan, bank credit card and other credit card) and "Least Likely To Discriminate" which includes transaction services (checking, bank saving and other saving). The rationale for this distinction has been discussed earlier.

Table 1 contains a summary of the results. Column 1 displays the results of conventional probit analysis and shows that race is a significant variable for some financial services indicating that there are black-white differences in the use of these services. However, only two of the six race variables in the group Most Likely To Discriminate are significant while four of the six variables in the group Least Likely To Discriminate are significant. This is exactly opposite the expected results if the hypothesis is true that discrimination is more likely in credit extension. Some support for the proposition that alleged discrimination has decreased over time exists in that the two significant race variables in the category Most Likely To Discriminate were significant in 1971 and became insignificant in 1979 while there was no change in the Least Likely To Discriminate category. It is tempting to conclude that the 1976 legislation was both needed and somewhat effective in reducing racial discrimination in the extension of credit services.

However, a potential problem with the above analysis, which is not readily apparent, is that rather than a restriction in the supply of a financial service causing the race variable to be significant or

TABLE 1

Probit Coefficient Estimates Relating to the
Potential Existence of Discrimination

Financial Variable	Race Variable		Race-Time Interaction Variable
	No Interactions Included	Race Interaction Included	
	Column 1	Column 2	Column 3
Least Likely to Discriminate			
Checking			
1979	-1.6234***	-1.9897*	
1971	- .6884***	- .5594	
Pooled			-1.0090**
Bank Savings			
1979	- .1980	.4189	
1971	.1447	-1.4481***	
Pooled			- .3604
Other Savings			
1979	- .4916*	-1.7842***	
1971	- .4663**	.0823	
Pooled			- .0046
Most Likely to Discriminate			
Bank Loan			
1979	- .2127	- .9085	
1971	- .4022**	.0418	
Pooled			.2958
Bank Card			
1979	- .2495	- .0764	
1971	- .5186***	- .9211	
Pooled			.2432
Other Card			
1979	.0377	.6662	
1971	- .2084	- .5504	
Pooled			.2029

Notes: Black = 1, white = 0; asterisks denote significance at the one percent (***), five percent (**), and ten percent (*) levels. Although it is legitimate to draw inferences from these probit estimates concerning the sign and statistical significance of the effect of the variables on the probability of using a financial service, it is not legitimate to draw any inferences concerning their magnitude. (See John Jackson and Richard Saba).

because race is not significant for the financial services in which financial institutions would be most likely to discriminate.

To further test support for the existence of discrimination in the supply of financial services, the impact of time on the significance of the race variable was explored. Pooling the data, a time dummy (=0 for 1971 and =1 for 1979) and corresponding interaction terms were created.⁸ Of importance is the sign and significance of the coefficient on the race-time interaction variable. A negative significant coefficient indicates an increase in the importance of race as a variable over time, while a positive significant interaction coefficient shows a decrease.⁹ These estimates are summarized in Column 3.

The results are striking in that while the signs for the services in the category Most Likely To Discriminate support the claim that there has been a decrease in the importance of race, none of the variables are significant. This result suggests that whether or not discrimination was a problem in 1971, the passage of the 1976 legislation produced no significant change in the situation (since the black-white difference in the probability of employing any of these services did not change significantly from 1971 to 1979). Coupled with our prior results incorporating race interaction terms, this further suggests that the legislation was not only ineffective, but also unnecessary. The variables in the category Least Likely To Discriminate have the opposite sign indicating race became more significant over time. The financial service, checking accounts, is the only one for which the race-time variable was found to be significant, but with a puzzling sign which indicates racial differences in the probability of having a checking account increased over time.

insignificant, the cause may have been the impact of socio-economic variables on the probability of using a financial service. To determine the extent of this effect, race interaction variables were created by multiplying the race dummy by each of the included socio-economic variables and the equations re-estimated.⁵ The coefficients on these interaction variables reflect black-white differences in the response of the probability of using a particular financial service to ceteris paribus changes in the explanatory variables. For example, a significant race-income interaction coefficient in the analysis of checking accounts indicates that the change in the probability of having a checking account caused by a change in income differs significantly for blacks versus whites.

Statistically significant interaction terms are the result of cultural differences in the way changes in socio-economic variables affect preferences for financial services. They may very well be the result of past discrimination in income earning potential or education availability, but they cannot be interpreted as the result of contemporary discrimination in the supply of financial services. This latter source of discrimination is indicated again by the race dummy. The inclusion of race interaction variables allows a clearer indication of the source of black-white differentials in the use of financial services and produces results which are more appropriate to answering the question of restriction in the supply of financial services based on race.^{6,7}

The results, displayed in Column 2, show that while there are significant race variables, they are all in the financial services in the Least Likely To Discriminate category. Overall, the support for the theory of the existence of discrimination in the supply of financial services is relatively weak

Because checking is a service in which banks are least likely to discriminate, it is rather doubtful that this result is attributable to an increase in discrimination against blacks in the supply of checking accounts. Even if this is the case, however, our conclusions concerning the efficacy of the 1976 legislation are unaltered. A more likely explanation for this result is differential growth in the demand for cash balances for transaction purposes. The demand by blacks grew less rapidly than that of whites.

III. Conclusions

An amendment was adopted in 1976 adding race to the list of characteristics which are prohibited as a basis for discrimination in the extension of credit. While pervasive racial discrimination in the extension of credit was alleged, little statistical evidence has been provided to support the allegation. In this paper, the discrimination issue has been examined by determining whether or not conditions existed which would be expected if the alleged discrimination existed.

There is not significant statistical support for the hypothesis that discrimination exists in the extension of credit. Thus, we cannot reject the argument that racial discrimination in financial services is not profit maximizing and therefore is thwarted by the market. The results in this paper are consistent with those of George Benston, Dan Horsky and Martin Weingartner with respect to redlining. They did not find evidence to support a driving need for antidiscrimination regulation in the extension of mortgages. The results are also consistent with those of Richard Peterson who found no evidence that lenders discriminated on the basis of sex prior to the passage of the Equal Credit Opportunity Act.

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FOOTNOTES

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¹The enforcing agencies and their responsibilities are as follows: (1) The Federal Reserve - all member state banks, (2) Comptroller of the Currency - all national banks, (3) Federal Deposit Insurance Corporation - insured nonmember banks, (4) Federal Home Loan Bank Board - federally chartered savings and loans, (5) The National Credit Union Administration - federal chartered credit unions, (6) Interstate Commerce Commission - regulated common carriers, (7) Civil Aeronautics Board - domestic and foreign air carriers, (8) Farm Credit Administration - federal land banks, (9) Securities and Exchange Commission - stock brokers and dealers, (10) Small Business Administration - small business investment companies, (11) Federal Trade Commission - all creditors not subject to the jurisdiction of the agencies mentioned above (Board of Governors, 1976, pp 365-366).

²Whether or not the American financial system is de facto competitive has been addressed in many studies. For the time period analyzed in this study, see John Scott (1977) and Federal Reserve Bank of Boston (1972). The question of the actual degree of competitiveness of the financial system is important to this study only in an ex post sense. A finding of discrimination gives implicit support to the hypothesis of a noncompetitive structure (and/or consumer prejudice), while a finding of no discrimination implicitly supports the converse hypothesis.

³ Even in a fully and correctly specified model, inferring discrimination from the significance of the race variable alone can be misleading since it ignores possible interaction effects. Indeed, much of the discrimination literature employs a decomposition technique to account for this problem (Blinder, 1973). The defect of Blinder's decomposition is that it assumes all interactions are supply determined. For a detailed discussion of the potential for incorrect inferences inherent in the rote application of this technique, see John Jackson and James Lindley (1983). As we argue later, significant interaction terms in this study are attributable to past discrimination in the supply of human capital and to consumer choice and not to discrimination in the supply of financial services. Of course, if the model is not correctly specified, a significant race variable may be the result of a specification error, (e.g. omitted variables). Currently, the economics literature offers no tests for such specification errors that can be applied to probit estimation.

⁴ The data and detailed statistical results are available from the authors upon request.

⁵ The use of dummy variables and dummy interaction terms to detect intercept and slope differences, respectively, between groups of data is discussed in J. Johnston (pp. 176-186). To the authors' knowledge, this procedure has not been applied in probit analysis. Nonetheless, the extension is straightforward: Consider the change in the probability of a particular event (R_m) caused by a change in the ℓ th explanatory variable for the i th observation. If the i th individual is white (race = 0), then $\partial(R_{m,1})/\partial X_\ell = \hat{\beta}_\ell$ [\cdot] where $\hat{\beta}_\ell$ is the estimated probit coefficient of X_ℓ and [\cdot] is $[f(\sum_j \hat{\beta}_j X_{ji} - \hat{\mu}_{j-1}) - f(\sum_j \hat{\beta}_j X_{ji} - \hat{\mu}_m)]$, f being the standard normal density function. If the individual is black (race = 1) then $\partial(R_{m,i})/\partial X_\ell = (\hat{\beta}_\ell + \hat{\beta}_p)$ [\cdot] where $\hat{\beta}_p$ is

the estimated probit coefficient of the variable created as the product of the race dummy and X_{ρ} . The difference in these probability changes is $\hat{\beta}_p$ [•]. At least for the dichotomous case, this difference will be significant if β_p is significant. Thus, a statistically significant interaction coefficient indicates a statistically significant difference in the way the probability of a particular event is affected by changes in a given explanatory variable for blacks versus whites.

⁶If significant interaction variables cause the race dummy to become insignificant, the implication is that all observed black-white differences stem from differences in the way changes in socio-economic variables affect preferences for the use of financial services. If significant interaction variables cause an insignificant race dummy to become significant, the possibility that offsetting effects from changes in the socio-economic variables obscured the detection of actual racial differences in the previous analysis is suggested.

⁷The equations were first run with all of the variables including all interaction variables. However, not all of the equations converged due partly to the large number of variables relative to the number of observations. The equations were rerun with only the significant variables with their corresponding interaction variables and the variable race. All of the equations then converged.

⁸In the eight year period separating the two samples, changes took place which could affect the usage of financial services. For example, the relaxation of Regulation Q could have caused transaction services to become more costly. So long as the effects of these changes are race neutral, the effects can be read from the significance of the time dummy alone. If the changes impacted one race more than the other, the effect could show up also

in the race-time interaction coefficient. This is one possible explanation (although in our view not a likely one) for the negative significant race-time interaction term for checking accounts in the third Column of Table 1.

⁹This result may not be readily apparent to the reader. It is perhaps most easily understood by realizing that the race time interaction coefficient indicates the difference in the black-white difference in the probability of a person using a given financial service in 1971 versus 1979. If this difference is to have decreased over time (i.e., if discrimination has declined over time), the coefficient must be positive.