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ABSTRACT

The Economic Opportunity Loan (EOL) Program provides loans to "disadvantaged" borrowers of all races and ethnic groups. Prior to fiscal year 1968 virtually all Small Business Administration (SBA) loans to minority borrowers were EOL loans and in the five fiscal years 1969 through 1973, 24,422 of the 36,782 SBA loans to minorities were EOLs. Economic Opportunity Loans are quite small in dollar amount relative to other SBA loans; in fiscal year 1973, the average SBA loan amount for minority borrowers was $19,795 under the EOL program and $61,157 under all other programs. The EOL program has, in operation, produced incredibly high rates of failure and loan repayment delinquency among the loan recipients. This study analyzes both the incidence and the causes of loan delinquency in the EOL program and in all other SBA programs for lending to minorities.

In its present form the EOL program is in a paradoxical state: the strongest loan recipients frequently succeed in business but these entrepreneurs come from high income groups and they should thereby be disqualified from the EOL program; the truly disadvantaged loan recipients fail in droves. Their failure rates necessarily have an adverse effect on the credibility of the Federal minority enterprise effort, and they are intolerably high to Congress. Alterations of the EOL lending philosophy and refusal to lend to minority businesses in the absence of reasonable repayment prospects would cut the SBA's delinquency and default rates. Based upon loan application information, this study derives discriminant analysis classification equations that can accurately predict the probability of default for minority group recipients of EOL loans. The classification exercises described in this study consistently reveal that bad credit risks can be identified by discriminant analysis classification equations derived

using loan application information that was available to loan officers prior to the loan approval decision. Furthermore, most EOL loans consistently show both a low predicted probability of repayment and a very high actual incidence of delinquency.

FINANCING MINORITY ENTERPRISE VIA THE ECONOMIC OPPORTUNITY LOAN PROGRAM: AN EVALUATION

I. Introduction

In 1968 the federal government established a new program, Project OWN, and expanded existing programs designed to foster the growth and development of the minority-owned business community. Government efforts stressed making long-term credit available to minority businessmen, and the expanded lending activities were rationalized by ambiguous references to "compensatory capitalism": in order to develop the minority resources seeking to find expression in business, bankers and government lending agencies would have to accept the principle of less stringent requirements for loans to minorities.[1] Programs include direct government loans and indirect assistance through commercial bank loans insured against default risk by the Small Business Administration. Always dominant in government attempts to finance minority enterprise, the SBA approved nearly 40,000 direct loans and bank loan guarantees providing more than $1.1 billion to minority entrepreneurs in the six-year period ending June 30, 1973.[2]

This study briefly examines SBA's overall minority business lending effort and then analyzes the incidence (and the causes) of loan delinquency. Based upon loan application information, discriminant analysis classification equations are derived that can accurately predict the probability of default for SBA minority borrowers. The findings suggest that refusal to lend to easily identifiable high risk borrowers would greatly reduce the incidence of delinquency and default in the SBA portfolio of minority business loans.

SBA's loan programs can conceptually be divided into two categories: the smaller category includes regular SBA business loans, SBA participations with private lenders and SBA guarantees of bank loans; the larger category (in terms of number of loans to minorities) consists of SBA Economic Opportunity Loans (EOLs). The Economic Opportunity Loan Program provides loans to "disadvantaged" borrowers of all races and ethnic groups. Prior to fiscal year 1968 virtually all SBA loans to minority borrowers were EOL loans, and in the five fiscal years 1969 through 1973, 24,422 of the 36,782 SBA loans to minorities were EOLs.[3] Economic Opportunity Loans are quite small in dollar amount relative to other SBA loans, and they are primarily designed for persons whose "total family income from all sources (other than welfare) is not sufficient for the basic needs of the family."[4] In fiscal year 1973, the average SBA loan amount for minority borrowers was $19,795 under the EOL program and $61,157 under all other programs.[5] The EOL program has, in operation, produced incredibly high rates of failure and loan repayment delinquency among the loan recipients.

II. Background

A. 6x6

Before 1964, racial, ethnic characteristics of SBA borrowers were not recorded but estimates from selected regional offices indicated that minority borrowers had received seven loans in Philadelphia and six loans in Washington, D.C., in the 10 years following the agency's founding in 1965. In January 1964 an experimental program called "6x6" was instituted to assist disadvantaged owners of very small retail and service enterprises. While "6x6" was not specifically a program for minority group entrepreneurs, it was anticipated that minorities would

receive a large relative share of the loans granted. SBA offered loan maturities extending to a maximum of six years and loan amount ceilings were $6,000--hence the "6x6" designation. By early 1965, 794 "6x6" loans had been approved, and minority businesses in five cities received 393 of these; the average loan amount was roughly $4,500.[6] The program, judged a success, provided the basis for an expanded program that was authorized under Title IV of the Economic Opportunity Act. In 1965 the "6x6" program was replaced by the Economic Opportunity Loan Program.

B. Economic Opportunity Loans

The early EOL program retained the philosophy of its predecessor, but the terms of lending became more generous: the loan maturity maximum was extended to 15 years and the loan amount ceiling was increased to $25,000. Loan eligibility was determined by the borrower's family income in relation to number of dependents. The EOL program sought solely to assist persons living in poverty.

In 1966, amendments to Title IV broadened the program so that eligibility was expanded to include people with incomes above the poverty level who "had been denied the opportunity to compete in business on equal terms."[7] By July 1968, 7,628 EOL loans totalling more than $80 million had been approved, and minorities received about 40 percent (in terms of both number and dollar amount) of these loans.[8] SBA had established an active program for lending to impoverished businessmen, but it did not really have a program designed to foster the growth and development of the minority-owned business community.

C. Project OWN

In July 1968 Howard Samuels was sworn in as Director of SBA, and "charged by the President with the responsibility of greatly increasing

loans to minority businesses."[9] Project OWN supported the creation and expansion of all lines of minority enterprise and shifted emphasis away from the poverty criteria upon which EOL loans had been based. Samuels emphasized the complementary notions of "compensatory capitalism" and the under-representation of minorities as owners of businesses. Project OWN sought to narrow the ownership gap--the gap between the proportion of minorities in the nation's population and the proportion of minority business owners in the nation's population of business owners, roughly 17 percent versus 4 percent[10]--by stimulating enormous increases in private sector lending to minority entrepreneurs. In addition to guaranteeing bank loans to minorities, SBA lending criteria were eased in all agency financial assistance programs. SBA was now firmly committed to expanding the size and scope of the minority-owned business community, and a large new source of loan funds, SBA guaranteed bank loans, had been effectively tapped. In fiscal year 1969, though, EOLs still accounted for 67.0 percent of all loans to minorities and in fiscal year 1970 the EOL percentage rose slightly to 71.9.

D. Operation Business Mainstream

In the 1968 presidential campaign, Richard Nixon stressed promotion of "Black capitalism" as the centerpiece of his civil rights program. In practice, Nixon's Black business development strategy simply meant a continuation of Project OWN (renamed Operation Business Mainstream) as far as SBA lending policies were concerned. Two changes implemented under Operation Business Mainstream, though, did facilitate the expansion of loans to high risk minority borrowers. First, SBA loan approval procedures were simplified and a blanket guarantee arrangement was established that minimized the paperwork involved in obtaining SBA guarantees

for bank loans. These simplifications undoubtedly encouraged increased bank participation in programs for lending to minority entrepreneurs. Second, the proportion of equity financing required in a borrowing was lowered for minorities and rules prohibiting loans to finance a change in ownership of a business were relaxed. Loans to minorities steadily increased in terms of number and dollar amount: the dollar volume of EOLs nearly tripled between fiscal years 1969 and 1973 while loan dollar volume under all other programs increased 344 percent.[11] This period was, however, one of rapid growth in overall SBA loan volume. The rise in loans to minorities is less impressive in view of the fact that the percent of minority loans in relation to total SBA loans has been declining annually since 1970.[12]

III. Financing Black Enterprise--Overview and Analysis

Minority enterprise development is sometimes equated with Black business development or "Black capitalism" promotion. This tends to confuse certain important and controversial issues. To avoid possible confusion, I will refer to Blacks and exclude other minorities; White borrowers will be used for comparison purposes in the following analysis.[13] As the first step in selecting the samples of firms analyzed in the remainder of the study, I received lists (on tape) of all loans approved between June 1967 and June 1970 by the New York, Chicago, and Boston SBA offices. For each borrower, these lists specified racial ethnic group affiliation, loan terms and certain business characteristics. For a randomly selected subsample of 555 Black borrowers and a comparison group of White borrowers, additional data were collected on loan repayment status, business finances and a number of other variables. These subsamples consisted solely of business borrowers located in the central cities of the metropolitan areas under consider-

ation.

Table 1

SBA Approvals of Direct Loans and Loan Guarantees for Minority Borrowers

Fiscal Year	Number of Loans	Number Increase Over Previous Year	Percentage Increase	Percentage of All SBA Loans Received by Minorities:	
				Percentage in Terms of # of Loans	Percentage in Terms of # amounts
1968	2,335				
1969	4,654	2,319	99%		
1970	6,262	1,608	35	41.0%	23%
1971	7,776	1,514	24	36.2	19
1972	9,016	1,240	16	32.2	16
1973	9,074	58	1		

A. Delinquency, Default and Failure

High delinquency and failure rates among minority borrowers have led to charges of ineffectiveness in SBAs Project Mainstream program. For the previously mentioned random sample of 555 Black borrowers, the incidence of loan delinquency exceeds 50 percent; by November 1973, only 255 of the 555 Black firms who borrowed between June 1967 and June 1970 were fully meeting their loan obligations. Among the comparsion group of White borrowers the incidence of delinquency was substanially lower.[15]

The three city sample of Black business borrowers has been broken down into three subsets: (1) existing businesses, (2) ongoing firms, and (3) de novo firms. Existing businesses are defined to include all sample borrowers who had been activiely running their own businesses for at least nine months prior to applying for an SBA loan or loan guarantee. Ongoing firms have been headed by their present owner (the SBA borrower) for less than nine months; the businesses in this category are mostly commonly "buyout" whereby the SBA loan is being used to finance transfer of an established firm from White to Black ownership. Blacks buying business franchises are included in the ongoing category of firms (franchises were quite rare).[16] Whereas ongoing firms are established in the sense that a mode of operation and/or a product clearly exists at the point in time when the Black entrepreneur enters the business, de novo firms have been started from scratch less than nine months prior to the borrower's application for an SBA loan. For both ongoing and de novo firms, the Black borrowers / entrepreneur under consideration most frequently begin active business operations several months after receiving the proceeds of SBA loans. Business operation is usually contingent upon SBA approval of the borrower's loan application.

Table 2

Repayment Status for Boston, Chicago, and New York

Black-Owned Firms, November 1973

Repayment Status	Existing Firms		Ongoing Firms		De Novo Firms	
	(#firms)	(percent)	(#firms)	(percent)	(#firms)	(percent)
No delinquency problem; current or paid in full	136	47.7%	70	54.3%	49	34.8%
Presently delinquent but still carried as an active loan	30	10.5	5	3.9	7	4.9
In liquidation (with litigation generally being instituted against the borrower) or charged off as an uncollectable loan	119	41.8	54	41.8	85	60.3
Total	285	100.0	129	100.0	141	100.0

Table 2 reveals that de novo firms are most frequently encountering loan repayment difficulties. When interpreting these loan delinquency figures, one should remember that SBA loan programs fall into two conceptually distinct groups. Tables 3, 4, and 5 suggest that delinquency figures should be disaggregated; among the three categories of Black borrowers, recipients of direct EOL loans consistently show the highest incidence of delinquency.

In each of these three categories of businesses, the incidence of delinquency among Black recipients of SBA direct EOL loans is far greater than the frequency of default among Black entrepreneurs borrowing under other SBA programs. Indeed, for Black de novo firms, borrowers receiving EOL loans show an incredible 70.2 percent incidence of loan delinquency and default. Overall, the incidence of delinquency among Blacks receiving EOLs is 64.0 percent while Blacks financed under SBA's other lending programs show a delinquency rate of 42.4 percent. Similarly, Table 6 shows that White borrowers receiving direct EOL loans exhibit much higher delinquency rates than Whites financed through other SBA lending programs. Because the SBA has stringent regulations that restrict, for White borrowers, the availability of loan funds for financing transfers of ownership (buyouts), the ongoing business category is excluded from Table 6 due to lack of data. Existing White-owned firms receiving non-EOL loans are excluded from Table 6 because repayment status information is not available (within this category) for a random sample of firms.

B. Causes of Loan Delinquency and Default

Considerable insight into the causes of loan delinquency is achieved by applying multiple discriminant analysis to the samples of delinquent and current loans. Delinquency status has been determined by whether or not a loan was in default at the end of November 1973. Using loan

Table 3

Repayment Status for Boston, Chicago, and New York Black-Owned Existing Firms, November 1973

Repayment Status	Direct EOL		Other Programs	
	(#firms)	(percent)	(#firms)	(percent)
No delinquency problem; current or paid in full	54	35.0%	82	62.6%
Presently delinquent but still carried as an active loan	20	13.0	10	7.6
In liquidation (with litigation generally being instituted against the borrower) or charged off as an uncollectable loan	80	52.0	39	29.8
Total	154	100.0	131	100.0

Table 4

Repayment Status for Boston, Chicago and New York

Black-Owned De Novo Firms, November 1973

Repayment Status	Direct EOL		Other Programs	
	(#firms)	(percent)	(#firms)	(percent)
No delinquency problem; current or paid in full	25	29.8%	24	42.1%
Presently delinquent but still carried as an active loan	5	5.9	2	3.5
In liquidation (with litigation generally being instituted against the borrower) or charged off as an uncollectable loan	54	64.3	31	54.4
Total	84	100.0	57	100.0

Table 5

Repayment Status for Boston, Chicago and New York

Black-Owned Ongoing Firms, November 1973

Repayment Status	Direct EOL		Other Programs	
	(#firms)	(percent)	(#firms)	(percent)
No delinquency problem; current or paid in full	29	46.8%	41	61.2%
Presently delinquent but still carried as an active loan	3	4.8	2	3.0
In liquidation (with litigation generally being instituted against the borrower) or charged off as an uncollectable loan	30	48.4	24	35.8
Total	62	100.0	67	100.0

repayment as the measure of loan success, multiple discriminant analysis was applied to the previously described samples of current and delinquent loans to find variables that discriminate between these two groups. The resultant discriminant functions could be used by the SBA to more effectively identify successful loan applications from urban Black entrepreneurs. Because de novo and ongoing Black firms are the most common and least analyzed Black borrowers, I will focus most heavily upon identifying causes of loan delinquency and business failure for these two groups.

1. The variables.

Personal financial statment (stock) variables and personal income were recorded in dollar amounts for the most recent full year prior to the filing of the loan application. These financial variables, as well as additional variables measuring management experience and credit rating, measure the condition of the SBA borrowers at the time of the loan approval decision. A complete list of the variables analyzed in this section appears below:

Owner's net worth - owner's total personal tangible assets minus total liabilities

Owner's income - wages, salary, net rental income, dividends and so on

Experience - years of managerial experience in any capacity, not just the kind of business in which one is presently engaged

Credit rating - a "good" credit rating means that no more than one instance of minor delinquency appears on the personal credit report of the borrower; dummy variable

Log time - logarithm of the number of months the loan has been outstanding

De novo dummy - for de novo firms, the value of this variable is set equal to one; the corresponding value for ongoing firms is zero.

Table 6

Repayment Status for Boston, Chicago and New York White-Owned Firms, November 1973

Repayment Status	De Novo Firms Only				Existing Firms	
	Direct EOL		Other Programs		Direct EOL Only	
	(#firms)	(percent)	(#firms)	(percent)	(#firms)	(percent)
No delinquency problem; current or paid in full	21	52.5%	25	78.1%	68	64.2%
Presently delinquent but still carried as an active loan	5	12.5	0	0	0	0
In liquidation (with litigation generally being instituted against the borrower) or charged off as an uncollectable loan	14	35.0	7	21.9	38	35.8
Total	40	100.0	32	100.0	106	100.0

2. Hypothesized relationships.

(a) The size of the entrepreneur's personal net worth is inversely related to the probability of default; owners with high personal net worth can fall back upon personal wealth if their business hits a slack period. The borrower with a higher net worth is therefore in better condition for maintaining SBA loan payments when business is slow.

(b) The size of the entrepreneur's personal income is inversely related to the probability of default; because personal income consists almost entirely of returns to human capital (both quality and quantity), personal income is a useful proxy for the entrepreneur's human capital inputs into the business under consideration.

(c) Number of years of managerial experience is inversely related to the probability of default; experience is being used as a proxy for management competence, a vital aspect of the quality of the entrepreneur's human capital inputs.

(d) Entrepreneurs with clear credit histories will be less likely to default on their loan repayment obligations.

(e) De novo firms have a higher probability of default than ongoing businesses.

The data used for calculating values of the explanatory variables were, with one exception, available to loan officers before the final decision of loan approval was made; no follow-up information has been utilized. One explanatory variable, the logarithm of the number of months the loan has been outstanding, has been included to control for the fact that older loans are more likely to be delinquent loans. In the following analysis, loans that are either current or paid in full are called "good" loans; those that are either delinquent or in default

are called "bad" loans. For discriminant analysis purposes, de novo and ongoing firms will be aggregated and the estimated discriminant functions will contain a dummy variable for de novo firms; this combined group will be labeled "new" firms.

Discriminant analysis is both a descriptive and a predictive statistical technique. The predictive aspect of discriminant analysis is most heavily emphasized in this article because it allows one to classify individual observations into previously designated groups, good and bad loans in this instance; the descriptive aspect of discriminant analysis, nevertheless, is relevant to this study because it permits one to investigate group mean differences within the various samples of SBA borrowers. In describing a sample of data that is divided into two groups, the basic question to be answered is whether these two groups, good loans and bad loans, differ in their mean vectors. The statistic used to test the significance of the difference between these group mean vectors has an F distribution and, as reported below, this test of significance shows that group vectors corresponding to the samples of good and bad loans are significantly different.

3. Empirical results.

Discriminant Function for Black New Firms

Variable	Coefficient
Net worth	-.000007
Income	.000122
Experience	.062556
Credit rating	.519944
De novo	-.824865
Log time	.212937

Note: Test for equality of group vectors: F = 10.72; F statistic is significant at the 0.01 percent level, implying that the group mean vectors are significantly different.

Black New Firms--Group Mean Vectors

	Group Good	Group Bad
Net worth	$14,143	$9,025
Income	11,179	7,620
Experience (years)	6.84	3.66
Credit rating	.86	.75
De novo	.41	.61
Log time	2.43	2.52
No. of observations	119	151

The discriminating power of each individual explanatory variable can only be expressed in relative terms; ranked from relatively strongest to weakest, the order is (1) income, (2) de novo dummy, (3) experience, (4) credit rating, (5) log time, and (6) net worth. The net worth variable, which is the only explanatory variable whose coefficient does not have the hypothesized sign, appears to be a trivial discriminator.

In the year prior to receiving a loan from SBA and forming a business, Black entrepreneurs who are fully meeting their loan repayment obligations had, as a group, a mean personal income of $11,179. These people had income and net asset holding that typically placed then far above the poverty threshhold. Hence, they do not generally belong to the "disadvantaged" group of borrowers that the EOL program is designed to assist. Delinquent Black borrowers has a mean personal income of about $7,600 in the year prior to receiving their SBA loans. A comparison of the borrower characteristics of Blacks receiving EOL loans versus those receiving loans under SBA's other programs provides further insight into the causes underlying the high incidence of delinquency observed among EOL borrowers.

4. Personal characteristics of Black borrowers: group means by type of loan received.

	Recipients of EOL Direct Loans	Recipients of Loans Under All Other Programs
Personal income	$7,358	$11,344
Net worth	$6,958	$16,372
Credit rating	.75	.85
Experience (years)	3.7	6.6
No. of observations	146	124

Mean values of borrower characteristics of EOL loan recipients are quite similar to the mean values reported for the subsample of seriously delinquent borrowers (bad loans).

The variables--personal income, net worth, credit rating, experience, de novo, and log time--have been used to estimate a nonlinear classification equation that classifies each of the sample observations into one of two groups, good or bad loans. Classification rules are based upon a "cutoff point" type of logic: If a borrower is estimated to have less than a 50 percent chance of avoiding serious loan repayment delinquency, then the observation is classified in the bad loan category; if chances of avoiding delinquency are greater than 50 percent the observation is classified good. This "50 percent cutoff" criterion simply means that an observation is classified good if the probability of the loan being good is greater than the probability that it is bad. Larger or smaller cutoff points may also be used with the classification equation developed below. In Table 7, for example, cutoff points of 25, 50, and 75 percent are used to classify observations.

When one is classifying individual observations into two groups and the a priori probabilities of group membership are known, the expected probability of misclassification is minimized by the following rules;

a. assign to population 1 if $\frac{\Pi_1(X)}{\Pi_2(X)} > \frac{\Pi_2}{\Pi_1}$

b. assign to population 2 if $\frac{\Pi_1(X)}{\Pi_2(X)} < \frac{\Pi_2}{\Pi_1}$

where Π_h is the a priori probability of an observation being drawn from group h and $\Pi_h(X)$ is the probability density function of population h.[17]

Assuming two multivariate normal populations, $N_1(\mu_1\Sigma_1)$ and $N_2(\mu_2\Sigma_2)$, the classification rules, after substituting in the density functions, taking natural logs and rearranging terms, may be written as

a. assign to population 1 if:

$$\hat{X}_1^2 < \hat{X}_2^2 + \ln |\Sigma_2\Sigma_1^{-1}| (-2) \ln \frac{\Pi_2}{\Pi_1} ,$$

b. assign to population 2 if:

$$\hat{X}_1^2 > \hat{X}_2^2 + \ln |\Sigma_2\Sigma_1^{-1}| (-2) \ln \frac{\Pi_2}{\Pi_1} ,$$

where,

$$\hat{X}_1^2 = (X - \mu_1)'\Sigma_1^{-1} (X - \mu_1) ,$$

$$\hat{X}_2^2 = (X - \mu_2)'\Sigma_1^{-1} (X - \mu_2)^{18} .$$

When the variance-covariance matrices Σ_1 and Σ_2 are equal (or are assumed to be equal) the classification rules are linear functions; when Σ_1 and Σ_2 are unequal, quadratic functions arise. For the samples of borrowers under consideration, the group variance-covariance matrices (corresponding to the good and bad loan groups) are significantly different;[19] accordingly, classification rules used in the remainder of this study will adhere to the quadratic form

shown above. Because the samples of loans to be classified are random samples of their respective populations and the sample size proportions are used as estimates of the a priori probabilities, the resulting classifications will yield consistent estimates of the "true" misclassification errors.[20]

From the sample of Black borrowers forming new businesses, a quadratic classification rule has been calculated using the subsamples of 119 good loans and 151 bad loans. For this same sample of Black borrowers, the resultant classification rule has been used to classify (1) the entire sample, (2) loans other than direct EOLs, (3) EOL direct loans only. The results of these classification exercises appearing in Table 7 below dramatically demonstrate the inferior quality of EOL loans relative to loans granted to Blacks under other SBA programs. Table 7 shows that 37.8 percent of the loans classified as "good" were, in fact, bad loans and 31.5 percent of the loans classified as "bad" were good loans; the overall incidence of misclassification was 34.1 percent.[21]

Assume for a moment that the discriminant analysis classification rules were adopted as decision rules by loan officers. For example, suppose that a 50 percent cutoff criterion is applied to loan applications so that loans are approved only if the probability of the loan being good is greater than the probability that it is bad. If this criterion had been applied to the sample of 146 Black recipients of direct EOL loans (Table 7) then only 42 (28.8 percent) of these 146 borrowers would have received their loans. Among the recipients of the remaining 124 loans (Table 7), application of the 50 percent cutoff criterion suggests that 69 (55.6 percent) of the 124 loans would have been approved. Of the entire sample of Black borrowers forming new businesses, 159

Table 7

Two Group Classification Results for Black New Firms

	Loans Actually Granted by SBA	Prediction (number of loans)		Prediction (percent)	
		Good	Bad	Good	Bad
Entire sample					
Loans that are good	119	69	50	62.2%	31.4%
Loans that are bad	151	42	109	37.8	68.6
Total no. of loans	270	111	159	100.0	100.0
Direct EOL loans					
Loans that are good	54	24	30	57.1%	28.8%
Loans that are bad	92	18	74	42.9	71.2
Total no. of loans	146	42	104	100.0	100.0
Other loans					
Loans that are good	65	45	20	65.2%	36.4%
Loans that are bad	59	24	35	34.8	63.6
Total no. of loans	124	69	55	100.0	100.0

failed to meet the 50 percent cutoff criterion; 109 of these 159 borrowers were seriously delinquent (or completely liquidated) by late 1973. In the remainder of the sample (those meeting the 50 percent cutoff criterion) 42.9 percent of the EOL loans and 34.8 percent of the other loans were seriously delinquent in late 1973.

Success or failure in loan repayment is, before the fact of loan approval, entirely probablistic. The problem facing SBA involves choosing a cutoff point, say 50 percent, and then refusing to lend to loan applicants who have less than a 50 percent chance of avoiding serious loan repayment delinquencies. If a fixed cutoff point is selected, then some firms that could have successfully repaid their loans and expanded their business operations would be denied long-term credit or, in the case of business formation, firms would probably never come into existence if their applications for SBA loans were turned down. Selecting a cutoff point for loan applicants involves tradeoffs; business failures will be avoided if weaker loan applications from prospective Black entrepreneurs are declined but some potentially successful operations will be handicapped, perhaps critically, by lack of SBA long-term credit. Table 8 illustrates the nature of the tradeoffs facing SBA when different cutoff points are used to judge the acceptability of loan applications received from Blacks. The decision rules are based upon the quadratic classification rules, which are defined, derived and analyzed earlier in this section.

Table 8 indicates that adoption of a 25 percent cutoff point by the SBA, which entails approving loans to Black applicants who have at least one chance in four of avoiding serious repayment problems, would bring a substantial decrease in delinquencies. In the overall sample of Black new firms, 92 borrowers had less than a 25 percent chance of success (in terms of loan repayment) and

71 of these 92 borrowers have actually failed to meet their loan repayment obligations. In the subset of de novo firms receiving EOL loans, 52 of the 84 loan recipients had less than a 25 percent chance of success and 43 (84 percent) of these 52 borrowers actually defaulted on their loans. If SBA had been using a decision rule corresponding to the quadratic classification rule and a 25 percent cutoff point had been applied to the groups of loan applications under consideration, then 92 fewer loans would have been approved; by approving fewer loans, 71 serious delinquencies would have been avoided. The tradeoff, in this case, would involve handicapping and perhaps undermining 21 potentially successful business operations for the purpose of avoiding 71 failures. It is hard to imagine that the SBA could rationally justify lending to these 92 borrowers when when only 21 of them are going to be capable of successfully meeting their loan repayment obligations.[22] Table 8 indicates that 73 of the 141 de novo borrowers fell below the 25 percent cutoff point but only 19 of the 129 ongoing borrowers fell below the 25 percent line. Black borrowers forming de novo firms are clearly concentrated near the bottom of the loan quality continuum.

5. Black existing businesses

Nearly 40 percent of the SBA loans and loan guarantees go to Black-owned existing businesses. Within the sample of 285 Black existing business borrowers analyzed in this section, direct EOL loans are, once again, far weaker loans generally than those granted under SBA's other loan programs (see Table 9 below).

Table 8

Lending Decision Rules Based Upon the Quadratic Classification Equation; Loan Acceptances at Various Cutoff Points

(new firms only)

	Loans Actually Granted by SBA	25 Percent Cutoff Point	50 Percent Cutoff Point	75 Percent Cutoff Point
I. Direct EOL loans				
A. De novo:				
1. Loans that are good	25	16	8	7
2. Loans that are bad	59	16	6	1
3. Total no. of loans approved	84	32	14	8
4. Resultant incidence of serious delinquency (%)	70.2%	50.0%	42.9%	12.5%
B. Ongoing:				
1. Loans that are good	29	25	16	4
2. Loans that are bad	33	25	12	3
3. Total no. of loans approved	62	50	28	7
4. Resultant incidence of serious delinquency (%)	53.2%	50.0%	42.9%	42.9%
II. Other loans				
A. De novo:				
1. Loans that are good	24	19	14	12
2. Loans that are bad	33	17	8	4
3. Total no. of loans approved	57	36	22	16
4. Resultant incidence of serious delinquency (%)	57.9%	47.2%	36.4%	25.0%

Table 8 (cont.)

	Loans Actually Granted by SBA	25 Percent Cutoff Point	50 Percent Cutoff Point	75 Percent Cutoff Point
II. Other loans				
B. Ongoing:				
1. Loans that are good	41	38	33	20
2. Loans that are bad	26	22	16	3
3. Total no. of loans approved	67	60	49	23
4. Resultant incidence of serious delinquency (%)	38.8%	36.7%	32.6%	12.0%
III. Overall				
1. Loans that are good	119	98	71	43
2. Loans that are bad	151	80	42	11
3. Total no. of loans approved	270	178	113	54
4. Resultant incidence of serious delinquency (%)	55.9%	44.9%	37.2%	20.4%

Classification exercises summarized in Table 10 show that nearly half of the existing business recipients of EOL loans had less than a 25 percent chance of success (in terms of loan repayment); only 21.4 percent of these borrowers (33 of 154) met the 50 percent cutoff criterion. I will not describe, in detail, the variables and the hypothesized relationships underlying the quadratic classification rule used to classify the 285 Black existing business observations. The classification rules described on page 17 have been applied to the Black existing business sample; discriminant function and classification rule variables, as well as hypothesized relationships, have been described in previously published studies.[23] The material presented in this section supplements previous studies by (1) using updated loan repayment status information in the various models and (2) breaking down borrowers into EOL and non-EOL categories. Earlier studies used 1971 repayment status information as the basis for separating observations into good and bad groups; the coefficients of the discriminant functions estimated using 1971 and 1973 repayment information are, interestingly, quite similar.[24]

Classification results for Black existing businesses are in many ways similar to those reported for Black new businesses. Adoption of a 25 percent cutoff point by the SBA would, once again, drastically reduce both the number of EOL loans approved and the resultant incidence of serious delinquency. Table 10 shows that 72 direct EOL borrowers had less than a 25 percent chance of success and 54 (or 75 percent) of these borrowers did, in fact, fail to meet their loan repayment obligations. The classification exercises described in this study have consistently revealed that bad credit risks can be identified by

Discriminant Function for Black Existing Businesses

Variable	Coefficient
Log total assets	.328791
Net worth	.000006
Outside income	.000023
Credit rating	.486383
Use of proceeds	-.726967
Liquidity	.404775
Repayment	.049460
Experience	.021431
Log time	-.105734

Black Existing Firms--Group Mean Vectors

	Group Good	Group Bad
Log total assets	9.83	9.26
Net worth	22,310	10,285
Outside income	3,489	2,178
Credit rating	.84	.74
Use of proceeds	.13	.19
Liquidity	-.05	-.12
Repayment	3.48	2.44
Experience	9.69	7.29
Log time	2.54	2.68
No. of observations	136	149

Note: Test for the equality of group vectors: $F = 9.39$, F statistic is significant at the 0.01 percent level implying that the groups mean vectors are significantly different.

Table 9

Two-Group Classification Results for Black Existing Firms

	Loans Actually Granted by SBA	Prediction (number of loans)		(percent)	
		Good	Bad	Good	Bad
Entire sample					
Loans that are good	136	63	73	70.8%	37.2%
Loans that are bad	149	26	123	29.2	62.8
Total number of loans	285	89	196	100.0%	100.0%
Direct EOL loan					
Loans that are good	54	20	24	60.6%	19.8%
Loans that are bad	100	13	87	39.4	71.9
Total number of loans	154	33	121	100.0%	100.0%
Other loan					
Loans that are good	82	43	39	76.8%	52.0%
Loans that are bad	49	13	36	23.2	48.0
Total number of loans	131	56	75	100.0%	100.0%

Table 10

Lending Decision Rules Based Upon the Quadratic Classification Equation Loan Acceptances at Various Cutoff Points

(existing firms only)

	Loans Actually Granted by SBA	25 Percent Cutoff Point	50 Percent Cutoff Point	75 Percent Cutoff Point
A. Direct EOL loans				
1. Loans that are good	54	36	20	9
2. Loans that are bad	100	46	13	5
3. Total no. of loans approved	154	82	33	14
4. Resultant incidence of serious delinquency (%)	64.9%	56.1%	39.4%	35.7%
B. Other loans				
1. Loans that are good	82	73	43	23
2. Loans that are bad	49	28	13	7
3. Total no. of loans approved	131	101	56	30
4. Resultant incidence of serious delinquency (%)	37.4%	27.7%	23.2%	23.3%
C. Overall				
1. Loans that are good	136	109	63	32
2. Loans that are bad	149	74	26	12
3. Total no. of loans approved	285	183	89	44
4. Resultant incidence of serious delinquency (%)	52.3%	40.4%	29.2%	27.2%

discriminant analysis classification equations derived using loan application information that was available to loan officers prior to the loan approval decision. Furthermore, most direct EOL loans have consistently shown both a low predicted probability of repayment and a very high actual incidence of delinquency.

IV. Conclusions

Recently, the government's minority enterprise program has been charged with ineffectivenss, politization, and corruption.[25] More specifically, the General Accounting Office has charged the SBA with failure to establish goals and standards by which its minority lending efforts can be evaluated; high rates of business failure have been documented.[26] Senate and House committees have, in recent months, expressed dissatisfaction with the high rates of delinquency and default found among SBA loans to minority entrepreneurs. The SBA has, in fact, evaluated the success of its minority lending programs by the number and dollar amount of loans made to minority businessmen. Criticisms of the SBA suggest, however, that the SBA should evaluate its effectiveness in terms of the number of successful minority businesses assisted rather than total number of loans approved.

In terms of numbers of loans to minorities, direct EOL loans have always constituted a large majority of SBA's loan approvals. The philosophy of the EOL program, as described earlier in this study, most often requires that recipients of Economic Opportunity Loans be bad credit risks. For example, in the previously described sample of 146 Black new business recipients of direct EOL loans, 131 firms fell below the 75 percent cutoff point (see Table 8). The remaining 15 borrowers, all rated as strong credit risks, reported mean personal incomes of $13,000 (over $16,000 in 1974 dollars). This strongest group of EOL borrowers clearly does not contain any poverty cases, and most of

them could have qualified for SBA loans under other programs. At the other extreme, EOL loan recipients having incomes below or slightly above the poverty threshhold almost invariably fail to meet the 25 percent cutoff criterion. If the SBA truely does lend in the spirit of the EOL program, then it can expect (and does experience) phenomenal default rates. Between the two extremes there are, undoubtedly, a few potential entrepreneurs in the $10,000-$12,000 income bracket who, in the absence of the EOL program, would be denied the opportunity to compete in business. Perhaps a small EOL program could serve this group of borrowers and manage to avoid incurring failure rates of greater than 50 percent.

In its present form, though, the EOL program is in a paradoxical state: the strongest loan recipients frequently succeed in business but these entrepreneurs come from high-income groups and they should thereby be disqualified from the EOL program; the truely disadvantaged loan recipients fail in droves. Their failure rates "necessarily have an adverse effect on the credibility of the Federal minority enterprise effort,"[27] and they are intolerably high to Congress.[28] The Economic Opportunity Loan program appears to be a device for perpetuating rather than alleviating poverty among low-income, disadvantaged entrepreneurs.[29]

Abandonment of the EOL lending philosophy and refusal to lend to minority businesses in the absence of reasonable repayment prospects would cut the SBA's delinquency and default rates. If the SBA adopted a cutoff point (not necessarily a fixed one) and refused to lend to applicants whose probability of default exceeded the acceptable cutoff, six direct consequences should follow:

1. de novo firms would receive few loans;
2. the EOL program would be appreciably diminished;
3. non-EOL loans to ongoing and existing firms would be relatively more frequent;

4. the incidence of loan delinquency and default would drop sharply;
5. SBA would be financing the creation and perpetuation of fewer marginally viable and non-viable firms;
6. the availability of loan funds for viable minority-owned businesses could be appreciably increased.

NOTES

[1]The philosophy of compensatory capitalism is put forth in Howard Samuels, "Compensatory Capitalism," Black Economic Development, eds., G. Douglas Pugh and William F. Haddad (Englewood Cliffs, New Jersey: Prentice Hall, 1969), pp. 60-73.

[2]Loan figures for fiscal years 1969 through 1973 are taken from Limited Success of Federally Financed Minority Businesses in Three Cities, Comptroller General of the United States (Washington, D.C., 1973), p. 17. Fiscal year 1968 Loan figures come from, "Evaluation of the Minority Enterprise Program," Small Business Administration, 1970 (mimeo), p. 4.

[3]Limited Success, p. 12.

[4]SBA: What It Is...What It Does (Washington, D.C., Small Business Administration, 1970), p. 6.

[5]These mean figures are based upon loan approvals: (1) 5,557 EOL loans totaling $110.0 million and (2) 3,285 regular loans for $200.9 million. A small number of loans to local development companies (average loan of $100,985) was excluded in the above calculations. Data on dollar volume and a number of loans were taken from Comptroller General Limited Success, pp. 10-12.

[6]"Evaluation of Minority Enterprise Program, Attachment I: A Brief History of SBA Minority Entrepreneurship Programs," Small Business Administration, 1970 (mimeo), p. 2.

[7]Ibid., p. 3.

[8]Ibid., p. 4.

[9]Samuels, "Compensatory Capitalism," p. 71.

[10]Comptroller General, Limited Success, p. 5.

[11]Ibid., pp. 10-12.

[12]Data on the percentage of all SBA loans received by minorities appears in "The SBA and Black Business," Black Enterprise (October 1972), p. 50.

[13]Other minorities are being excluded because loan data is not available in sufficient quantity for them to be included in the following analysis.

[14]Central city areas analyzed in this study were defined to include those counties which were dominated by the city under consideration. For New York City, city boundaries coincide exactly with the boundaries of the central counties. For Chicago and Boston, the central counties used to define the central city area, Cook County and Suffolk County respectively, encompass the entire cities and small parts of the surrounding metropolitan areas. For a detailed analysis of sample selection procedures see, Timothy Bates, "The Potential of Black Capitalism," Public Policy, 21 (Winter 1973): 147-48. See also, Bates, "Financing Black Enterprise," Journal of Finance, 29 (June 1974): 758-61.

[15]A more extensive comparative analysis of the samples of Black and White borrowers appears in Timothy Bates, Black Capitalism: A Quantitative Analysis (New York: Praeger, 1973), pp. 99-121.

[16]Nineteen of the 129 Black ongoing firms under consideration are franchise operations.

[17]These classification rules are discussed in R.A. Eisenbeis, "Discriminant Analysis and Classification Procedures," Zeitschrift Fur Die Gesamte Staatswissenschaft, 127 (July 1971): 507-10.

[18]Following Eisenbeis, "Discriminant Analysis," p. 510, the log of the ratio of the density functions is:

$$\ln\frac{1(x)}{2(x)} = \frac{\ln \frac{1}{(2\pi)^{1/2}\Sigma_1^{1/2}} \exp - 1/2[X - \mu_1)'\Sigma_1^{-1}(X - \mu_1)]}{\frac{1}{(2\pi)^{1/2}\Sigma_2^{1/2}} \exp - 1/2[X - \mu_2)'\Sigma_2^{-1}(X - \mu_2)]}$$

$$= 1/2\ln|\Sigma_2\Sigma_1^{-1}| - 1/2[(X - \mu_1)'\Sigma_1^{-1}(X - \mu_1) - (X - \mu_2)'\Sigma_2^{-1}(X - \mu_2)]$$

$$= 1/2\ln|\Sigma_2\Sigma_1^{-1}| - 1/2[\hat{\chi}_1^2 - \hat{\chi}_2^2]$$

where

$$\hat{\chi}_1^2 = (X - \mu_1)'\Sigma_1^{-1}(X - \mu_1)$$

$$\hat{\chi}_2^2 = (X - \mu_2)'\Sigma_2^{-1}(X - \mu_2)$$

[19]For Black new businesses the group dispersion matrices (corresponding to the good and bad loan groups) are significantly different (F=4.27) at the 1 percent level. For Black existing firms the group dispersion matrices are significantly different (F=4.61) at the 1 percent level.

[20]Robert Avery and Robert Eisenbeis, "The Theory of Discriminant Analysis and Classification Procedures and Their Applications," working paper of the Division of Research, 1972, Federal Deposit Insurance Corporation, Washington, D.C., p. 66.

[21]When a linear classification rule was used to classify the sample of Black new firms, the results were quite similar.

[22]I am not suggesting that the SBA should adopt a fixed cutoff point for evaluating all loan applicants because the SBA may have goals that would justify assuming greater or lesser risks in varying circumstances. At some point, though, loans to potential Black borrowers become so risky that the SBA, in lending to such borrowers and then hauling them into court when they default, does not appear to be acting in a fashion that is defensible in terms of being equitable or encouraging economic efficiency. If the SBA decided to adopt a cutoff point for approving loan applications, this cutoff could be made flexible to accommodate other relevant considerations. If the SBA is concerned, for example, with protecting itself against losses of loan principal in the event of default and business liquidation, then the SBA could set collateral requirements for potential borrowers whose probability of avoiding delinquency falls below some predetermined level. The SBA could, in this fashion, implement a multidimensional objective function based on a decision rule constructed in the manner shown in Table 8.

[23]Bates, Black Capitalism, pp. 92-107. See also, Timothy Bates, "An Econometric Analysis of Lending to Black Businesses," The Review of Economics and Statistics, 55 (August 1973): 275-81.

[24]When 1971 repayment status was used to separate the sample into good and bad groups, the resultant discriminant function was:

Variable	Coefficient
Log total assets	.421057
Net worth	.000001
Outside income	.000014
Credit rating	.474143
Use of proceeds	-.607913
Liquidity	.451900
Repayment	.041072
Experience	.017410
Log time	-.148781

Footnote 24 (cont.)

While the names of most of the variables immediately suggest their definitions, two of the above variables require clarification: (1) repayment refers to annual cash flow that could be used for loan repayment, relative to the size of annual loan repayment obligation under the terms of the SBA loan; (2) use of proceeds is the proportion of loan proceeds being used strictly to refinance existing business debt.

[25]Paul Delaney, "Aid to Minority Businesses: A Lever for Nixon in '72," New York Times (November 18, 1973).

[26]Comptroller General, Limited Success, pp. 1-3 and 25-29. This study is informative but methodologically weak to the extent that its analysis of causes of business failure is useless.

[27]Ibid., p. 2.

[28]One recent attempt by Congress to reduce the EOL program failure rates entailed increasing to $50,000 the loan amount ceilings. While the simple negative correlation between loan amount and delinquency is quite high, loan amount is not causally related to delinquency. When loan amount is treated as an explanatory variable and added to the discriminant functions appearing on pages 14 and 23 of this study, loan size (in dollars) is in the resultant discriminant functions, directly related to delinquency--a larger loan increases the probability of default, (other things constant) but this relationship is quite weak.

[29]When a borrower becomes delinquent and is forced to liquidate his business, he must continue to meet his SBA loan repayment obligations unless he (convincingly) pleads bankruptcy.