VIABLE LOAN CATEGORIES FOR VETERANS

FINAL REPORT

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U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY AND THE OFFICE OF VETERANS AFFAIRS

SUBMITTED BY:

JOEL POPKIN AND COMPANY 1030 15th STREET, N.W., #860 WASHINGTON, D.C 20005 This study was performed under contract to the U.S. Small Business Administration for the Office of Veterans' Affairs and the Office of Advocacy. The researchers would like to thank SBA's Office of Computer Services for their assistance in preparing the documents needed to draw the loan sample. We would also like to thank the district directors and the staffs of the seven district offices and one branch office visited whose cooperation made the loan file data collection effort possible.

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I. Executive Summary

This project appears to be the first funded by SBA that required the scientific sampling of the SBA universe of direct and guaranteed loan files and their analyses. The final sample consisted of 724 guaranteed loans and 290 direct loans. They are representative of four areas of the country and three industry sectors. Each loan was awarded during the five-year period 1975-1979. Three out of four guaranteed loans were either paid in full or were being paid off on schedule. For direct loans, about one out of every two loans was paid off or current with respect to repayment.

The major factors found in this study to affect the performance of SBA loans—i.e., the ability of firms to meet payment schedules in a timely way—are:

- The economic growth rate of the geographical region in which the business is located;
- 2. the economic growth rate of the industry that the business is in;
- whether the business is a franchise;
- 4. whether the loan is direct or guaranteed; and
- 5. the years of previous experience of the owners.

Marginally significant contributors to the timely repayment of loans are:

- The number of employees; and
- gross assets per employee.

These variables comprise (1) factors external to the firm, (2) characteristics of the firm and (3) characteristics of the owners. It is reasonable to expect that all three types of variables would play a role. While the variables cited are largely significant, they explain only about 15 percent of the success of loans (defined as an "either-or" dummy variable). Certainly other variables play a role. Some probably cannot be quantified. Other likely key variables were not uniformly available in enough loan files to be useful in the study. They can and probably will become available as the SBA data base of loan files undergoes normal evolution.

One deliverable of this project is machine readable data files covering 1,014 direct and guaranteed loans approved during 1975-1979 by SBA. These data files should prove useful in other studies the SBA staff may wish to conduct. This project should also yield insights into improved ways of specifying loan application forms and of insuring that the loan files contain consistent sets of information.

II. Objectives and Design of the Study

A. Purpose of the Project

The Small Business Administration has been making loans to small businesses since 1953. Its files contain the records of these loans, indicating those that were successfully repaid and those that resulted in temporary or permanent default. Some of the data in the files have been analyzed in a case study for one district office to isolate those financial ratios that affect loan repayment. Their importance, however, could not be rigorously tested beause the data were not scientifically sampled.

Financial ratios—past and prospective—are not the only likely determinants of the success of SBA loans. The purpose of this study has been to collect scientifically drawn sample data from the loan files, and to analyze them to determine the variables that influence the outcome of loans. The results should be helpful in counseling the various classes of veterans, their dependents and other survivors who might be considering the operation of a small business, as well as all those who might seek SBA assistance. Knowledge about the kinds of businesses that were most viable in the past can help in the choice of which businesses to enter in the future. Knowledge of the factors that affect the repayment history of a loan by business can help in the determination of whether a loan is in the best interest of the

O'Rourke, Vincent, Jr. "The Usefulness of Financial Ratio Analysis for Discrimination of Small Business Risks," 1983, University Microfilms International, Ann Arbor, Michigan. The study showed that current rather than historical cost financial data available at the time of the loan application were useful in predicting loan outcome.

recipient and whether the amount requested is consistent with the ability of such businesses to repay it.

The objective of this research as stated by SBA is "to determine which types of business have the best SBA loan repayment history, after adjustment for differences in age, education and other characteristics related to the background of the entrepreneur." More broadly, the objective is to discern the variables that systematically play a significant role in determining the success or failure of loans.

B. Design of the Study

To achieve its purpose, the study must be designed to control for the most important variables that are likely to determine the success of a loan. Most of these variables can be classified in one of three categories:

- Variables external to the borrower, particularly the economic growth
 of the geographical area and industry in which the firm is located,
 as well as the state of the national economy;
- 2. Variables reflecting current and prospective financial measures derived from pro forma and actual balance sheets and income statements, and other characteristics of the firm such as employment; and
- 3. Variables measuring characteristics of the entrepreneurs, such as previous experience, years self-employed, education, etc.

External variables were taken into account through appropriate sample design. All loan applicants were viewed as being affected similarly by developments in the national economy. But it was necessary to isolate the effect of the business cycle. This prompted the decision to collect data over the course of a business cycle. The five-year period 1975-1979 was

chosen because 1975 was the trough year of a recession and 1979 the peak year of the ensuing expansion. The use of loans approved over a five-year period has the added advantages of increasing the pool of loans from which the sample could be drawn and, more importantly, providing enough elapsed time to observe the performance and/or outcome of the loans. Since the sample data were collected in the first half of 1984, there were at least four years of performance that would be measured for those loans approved in 1979, the last year of the sample.

Differences in growth by area and industry were taken into account through stratification. To do this, three industries were selected as the focus of the study. The industries are restaurants, auto repair, and a conglomerate, "high tech" industry. The first two industries reflect industries growing at an average rate, in contrast to the "high tech" industry which has been growing rapidly.

The high tech industry is defined as follows: (1) Office and Computer Machines (SIC 357); (2) Radio and TV Receiving Equipment (SIC 265); (3) Communication Equipment (SIC 366); (4) Electronic Components and Accessories (SIC 367); (5) Miscellaneous Electrical Equipment and Supplies (SIC 369); (6) Guided Missiles, Space Vehicles, Parts (SIC 376); (7) Measuring, Analyzing, and Controlling Instruments; Photographic, Medical, Optical Goods; Watches and Clocks (SIC 38); (8) Computer and Data Processing Services (SIC 737); and (9) Research and Development Laboratories (SIC 7391). These industries correspond closely to those designated as high tech by Thomas Gray and Bruce Phillips in their paper The Role of Small Firms in Understanding the Magnitude

of Fluctuations in the Economy". The SIC classes for the other two industries are: automotive repair consisting of: (1) Automotive Repair Shops (SIC 753); (2) Automotive Services, except repair (SIC 754); and, (3) Gasoline Service Stations (SIC 5541). The third industry is eating and drinking places, (SIC 58).

The next step was to select four states, two in which economic growth was very high, two in which it was very low. Once the states were selected, district offices in each would be selected from which data would be collected. SBA makes a considerable number of loans in the restaurant and automotive industries, but not nearly as many in the high tech industry, so steps had to be taken to insure an adequate sized sample for that industry. Therefore, the universe for selecting high and low growth areas was limited to the ten states with respect to the largest number of small business establishments in the key "high tech" industries. Selection from among these states insured that the loan file would yield an adequate number of observations of loans to firms in high tech industries. Accordingly, states were arrayed by the number of establishments with fewer than twenty employees in the four major high tech industries (SICs 367, 3573, 3823, and 737). The top ten states were selected as candidates for sampling because they were likely to have enough high tech activity to insure the collection of samples of adequate size for statistical purposes.

All of the fifty states were then ranked by growth characteristics. The characteristics used were the growth rate of (1) total employment from 1979 to 1981; (2) employment in establishments with under 20 employees from

1979 to 1981; (3) total employment from 1970 to 1980; (4) self employment from 1979 to 1980; and (5) number of proprietors from 1977 to 1980. The employment of all establishments was selected as a ranking variable because it was presumed to reflect overall economic growth of the area. The other three measures were selected because they reflected small business growth.

Table II.A shows the results of this exercise. All of the top ten states ranked by number of high tech establishments were among the top or bottom ten states for at least one of the five growth-related variables used to rank them. Florida and Texas stood virtually alone among high growth states, ranking high on four of the five measures, including ones measuring both total and small business growth. Illinois ranked among the lowest in four of the five measures. These three states were obvious selections. The fourth state selected was New York because, among low growth states, it ranked among the ten lowest states in both total and small business employment growth over the longest time span considered—1970-80.

Once the three industries reflecting high and normal growth industries and the four states reflecting high and low growth were selected, the SBA Office of Computer Services (OCS) provided counts of the number of direct and guaranteed loans in each industry in the major SBA offices in each state. Except for the New York City office, there was an inadequate number of loans

TABLE II.A
Employment Growth

State and Rank by Number of All Establishments in "High Tech" (SIC 367,3573, 3823, and 737)		TOP 10					BOLLOW TO				
		19	<u>79–81</u>	1970	<u>-80</u>	<u>77–80</u>	<u>19</u>	7 <u>9–81</u>	<u> 1970</u>	<u>-80</u>	<u>77-80</u>
		All Est	Est/w Under 20	All <u>Est</u>		<u>Prop</u>	All Est	Est/w Under 20	All <u>Est</u>	Self <u>Emp</u>	Prop
1.	California (4363)				x						
2.	New York (1952)		•						x	x	
3.	Texas (1459)	X	x	x		x					
4.	Illinois (1297)						x		x	x	x
5.	New Jersey (1235)								x		
6.	Massachusetts (1012)								x		x
7.	Pennsylvania (937)							X	X		
8.	Ohio (745)						x		x		x
9.	Florida (756)	X	x	x	X		•				
10.	Michigan (618)						x	. x	x		

during 1975-79 in the high tech industry in any one SBA office in the other three states. (Some observations for New York were recorded at its Melville, Long Island branch office.) In Texas, the Houston office had sufficient loans to serve as the main collection point, but high tech observations were obtained from Dallas as well. In Florida, Miami was the main collection point, supplemented by Jacksonville for high tech. In the case of Illinois, it was decided to obtain the supplemental high tech observations from Detroit. It is close geographically to the Chicago SBA office from which the Illinois

data were obtained and Michigan, like Illinois, had low economic growth qualifying it for the list in Table II.A.

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The sample plan for guaranteed loans was to choose 80 loans in each of the three industries and for each of the four regions, a total of 960 potential observations. For direct loans the plan was to choose 40 loans per industry and per region, yielding 480 potential observations.

Because there were not enough direct loans generally, and in some cases, not enough guaranteed loans, to meet the sample objectives, the final sample consisted of 889 guaranteed loans and 358 direct loans. Of the 889 loans in the guaranteed sample, 724 observations were obtained. For the 358 loans in direct loan sample, 290 observations were obtained. The reasons for nonresponse are discussed more fully in the next section, but the main reasons are missing loan files and incomplete information in some of the files.

Tables II.B (guaranteed) and II.C (direct) compare by region and by industry the number of loans available to be sampled, the number of loans chosen for the sample, and the number of observations the sample yielded. The response rate was calculated as the number of loan observations obtained divided by the number of loans in the sample.

For guaranteed loans, Table II.B shows that there was an inadequate number of loans to be sampled in all regions except for Houston/Dallas. The shortfall was in both the high tech and automotive industry categories.

The overall response rate for the guaranteed loan sample was 81 percent. The lowest response rate for an industry was 79 percent (restaurants) and for a region it was 78 percent (Houston/Dallas). The highest response rate for an industry was 85 percent (automotive) and for a region it was 85 percent (Miami/Jacksonville).

Table II.C indicates that there was an inadequate number of loans to be sampled in all four regions. This was due almost entirely to a shortage of direct loans to be sampled in the high tech industry. For the direct loan sample the overall response rate was also 81 percent. The lowest response rate for an industry was 80 percent (high tech) and for a region 71 percent (Houston/Dallas). The highest response rate for an industry was 81 percent (automotive and restaurants and for a region 88 percent (Chicago/Detroit).

The following are definitions of the various classifications used in Tables II.B and II.C:

AVAILABLE: The number of loans reported on the SBA Office of Computer

Services computer listing, excluding all loans that were

cancelled prior to being made.

SHORTFALL: The number of additional loans needed to meet the sample

size objective, had they been available.

SAMPLE: The number of loans that were selected for examination from

the AVAILABLE category.

OBSERVATIONS: The number of loan files that were accessible and that yielded

data on a sufficient number of variables.

TABLE II.B

Guaranteed Loan Sample

INDUSTRY:	HIGH TECH	AUTOMOTIVE	RESTAURANTS	Total ALL INDUSTRY	TOT OBS/* TOT SAMPLE
AREAS					
New York					
Available Shortfall Sample Observatio	101 0 80 ons 63	64 16 63 56	224 0 80 61	389 16 223 180	81%
Chicago/Detro	oit				
Available Shortfall Sample Observation	83 0 79 ns 69	57 23 57 46	177 0 80 62	317 23 216 177	82%
Miami/Jackson	nville				
Available Shortfall Sample Observation	50 30 50 ns 39	112 0 80 75	181 0 80 65	343 30 210 179	85%
Houston/Dalla	as				
Available Shortfall Sample Observation	118 0. 80 ns 61	106 0 80 61	217 0 80 66	441 0 240 188	78%
Total - All A	Areas				
Available Shortfall Sample Observation	352 30 289 ns 232	339 40 280 238	799 0 320 254	1490 69 889 724	81%
TOT OBS/* TOT SAMPLE:	808	85%	79%	81%	

^{*} Equivalent of a response rate.

<u>TABLE II.C</u>

Direct Loan Sample

INDUSTRY:	HIGH TECH	AUTOMOTIVE	RESTAURANTS	Total ALL INDUSTRY	TOT OBS/* TOT SAMPLE
AREAS					
New York					
Available Shortfall Sample Observatio	18 22 18 ons 12	39 1 31 28	105 0 40 34	162 23 89 74	83%
Chicago/Detro	oit				
Available Shortfall Sample Observation	13 27 13 15	46 0 40 35	83 0 40 36	142 27 93 82	88%
Miami/Jacksor	wille				
Available Shortfall Sample Observation	11 29 11 15	57 0 43 36	66 0 40 29	134 29 94 76	81%
Houston/Dalla	ıs				
Available Shortfall Sample Observation	2 38, 2 ns 1	49 0 40 26	96 0 40 31	147 38 82 58	71%
Total - All A	Areas				
Available Shortfall Sample Observation	44 116 44 15 35	191 1 154 125	350 0 160 130	585 117 358 290	81%
TOT OBS/* TOT SAMPLE:	80 %	81%	818	. 81%	

^{*} Equivalent of a response rate

III. Data Collection and Availability

After the sample of loans was determined, the next step was to select the data that would be retrieved from each loan file. The objective was to get as much routinely reported quantitative data as possible on the characteristics of the business and the characteristics of the entrepreneur(s) or borrower(s). The process of analyzing personal characteristics of the borrower(s) is called the "human capital approach." It posits that the characteristics of the owners, in addition to the characteristics of the business and economic conditions, are important to predicting the likelihood of successful loan repayment.

The SBA's Washington, D.C. district office was visited during December 1983. The purpose of the visits was to examine actual loan files (not from the sample) to get an idea of the data that routinely could be found in any SBA guaranteed or direct loan file, and the best source of such data from among the official forms and supporting materials in each file.

Examining loan files in the Washington, D.C. district office facilitated the development of an initial data collection form that was used to transcribe data from the loan files. This form was used during January 1984 to record data obtained in the initial field visit (to the New York district office). During this visit approximately 100 loan files were examined. It was clear from this initial field visit that there would be a fairly wide variance in the availability of the pieces of data being sought from each loan file.

This first data collection effort also produced a number of insights that resulted in changes to the data collection form. The form initially developed was revised to incorporate several new variables that the loan files examined in New York indicated could be significant. A copy of the revised data collection form, which was used for the remainder of the data collection effort, is included as an appendix to this report.

After the results of the initial field visit to New York had been analyzed and the survey form was revised, the remaining field work was undertaken. During the first part of March 1984 data collection was completed for New York City and its branch office in Melville, Long Island. The last two weeks of March were spent collecting data from the Miami and Jacksonville district offices in Florida. Data collection in the Houston and Dallas, Texas district offices was conducted during the last two weeks of April. The Chicago, Illinois and Detroit, Michigan district offices were visited during the last two weeks of May.

As the field work was being conducted, it was evident that a larger than expected proportion of the sample loan files had already been shipped to storage in Federal Records Centers. Almost all of the files that had been archived were retrieved and shipped to Washington, D.C. where they were examined. This last phase of the data collection effort was completed by the beginning of October, 1984.

The typical direct or guaranteed loan file from the sample period was a compendium of materials and information which came from several sources.

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The following is a list of the categories of documents contained in a typical direct or guaranteed loan file:

- 1. The original loan application and related materials submitted by the applicant in support of the application (SBA Forms #4, #912, #413 plus supporting materials).
- 2. The loan officer's evaluation of the loan application package and recommendation of approval or declination (SBA Forms #1117 or #531, #1180, plus materials related to evaluation process).
- 3. The loan authorization document stating amount and terms of the loan (SBA Form #529B and loan administration materials).
- 4. The change in loan status documents that detailed any changes in the amount of the loan, the use of loan proceeds, the terms of the loan, or the loan's status.
- 5. Miscellaneous legal documents (franchise agreements, leases, incorporation papers) and numerous other materials (notes by SBA personnel on field visits, general correspondence, etc.) that were part of the permanent loan file.

First of all, the typical file contained the original Loan Application (SBA Form #4) and a number of supporting materials that were required to complete the borrower's loan application package. Materials submitted in support of the loan application included information on the history of the

business and/or a business plan describing the benefits expected to be received from the loan. Also required were a current balance sheet, an income and expense statement, and a projection of income and expense for the business. These supporting materials provided most of the financial characteristics of the business. The financial materials for the business were almost always found in the sample loan files, but, since they were not requested on standard SBA forms, the format and level of detail in which this information was given varied a great deal. This non-standardization of financial information for the individual businesses made it difficult to obtain comparable financial data for each business.

In addition to submitting this information on the characteristics of the business, the borrower(s) was required to submit a Statement of Personal History (SBA Form #912), a Personal Financial Statement (SBA Form #413) and a personal resume. These supporting materials provided most of the human capital and other personal characteristics of the borrowers. SBA Form #912 provided the borrower's date of birth. SBA Form #413, or its equivalent, gave the borrower's personal assets and liabilities (as distinguished from those of the business). These data were almost always available in the loan files since the loan application could not be processed without these forms.

The personal resumes of the borrowers were a primary source of previous work experience and education. While it was sometimes possible to derive this information from other parts of the loan file (such as notes made by the loan officer or a Dun & Bradstreet report on the business), it was found

most often in the materials submitted in support of the loan application. However, not every file contained this information and the degree of detail given, when it was available, varied enormously. For these reasons, experience and education variables were missing from many files.

In evaluating the loan application package, SBA personnel would fill out SBA Form \$1117 or \$531. These were forms used by the loan officer in determining whether the loan application would be recommended for approval or declination. Sometimes, as part of this evaluation, the management experience of the applicant would be rated. SBA Form \$1180 - Summary Management Rating was used for this purpose but was not in general use until late 1978. Since our sample was drawn from loans authorized during the period 1975-1979, relatively few of the files in our sample contained SBA Form \$1180, and the evaluations could not be included in the list of variables analyzed for the full set of observations.

When a loan application was approved and the loan was granted, the Loan Authorization (SBA Form \$529B), describing the terms of the loan and the use of proceeds, also became part of the permanent loan file. If during the term of a loan, there were changes made to the loan conditions set forth in the Loan Authorization, each change in status would be described by a Change in Loan Status form, which also became part of the file. This information was frequently used to update the loan status given by the OCS listing. For example, a loan with a past due status at the time the listing was produced might have become current by the time the loan file was examined, and its status was recorded as the current status given in the loan file.

There were other prescribed documents and correspondence that might be contained in a typical file, but their availability varied from loan to loan. Some examples are Dun & Bradstreet reports on the business, copies of franchise agreements for loans to businesses that were operated as franchises; copies of leases for space for businesses to operate; management assistance reports prepared for some borrowers, and various other documents having to do with the general business operation and loan administration.

The data outlined in Tables III.A and III.B were retrieved from the sample loan files and supplemented with information from the computer listing of the loan sample which was provided by the SBA Office of Computer Services. The computer listing of the loan sample contained several pieces of information for each loan to be sampled that were not readily available in the loan file. An example is the SIC Code for the business receiving the loan. The survey form, included as an appendix, shows the breakdown of information that came from the OCS listing (Part A of survey form) or the loan files (Part B of survey form).

The variables outlined in Tables III.A and III.B are denoted as either "mostly available" or "frequently missing." As Table III.A indicates, most of the "human capital and other personal characteristics of the borrower" variables were frequently missing. The data collectors had originally intended to use SBA Form 0353-111, Personal Data/Management Experience, to obtain information on the borrower's general education, vocational education, experience in the same line of business, previous business ownership, and veteran status. However, no edition of the form was in use before 1981, and none of the

files from the 1975-1979 loan sample period contained this form or its equivalent. The data collectors relied on the personal resumes submitted by the borrowers with the loan application package to derive this information. The detail and organization of the resumes was not consistent, and, therefore, there were many observations missing for these variables. An exception to the frequently missing variables was information on the borrower's experience in the same line of business which was usually available in the notes the loan officer made in evaluating the loan application.

The veteran status of the borrower was available from the loan sample computer listing provided by OCS. However, the OCS listing frequently coded veteran borrowers as non-veteran in status. The reasons for this appeared to be the lack of a required standard form where the borrower was specifically asked about military service, and/or a reluctance on the part of some borrowers to "use" their veteran status to obtain a loan. The discrepancies between actual veteran status and that given by OCS were brought to light by the personal resumes of borrowers and the other loan file materials discussing the borrower's background. When veteran status derived from materials in the loan file differed from that given in the OCS listing, the information in the loan file was used to correct the veteran status. In these situations it was always the case that the OCS listing had the borrower coded as a non-veteran when, as indicated by the borrowers resume or other loan file materials, the borrower had in fact served in the military.

TABLE III.A

Human Capital and Other Personal Characteristics of the Borrower

- 1. Education (m)
- Relevant vocational education (m)
- 3. Expe:ience in line of business (a)
- 4. Previous business ownership (m)
- Veteran status (m)
- 6. Summary Management Rating (1979 only)
 - a. Experience
 - b. Education & training
 - c. Kind of business (existing, new, buy-out)
 - d. Business knowledge
 - e. Human relations
 - f. Business risk
 - g. Management dependence on owner
- 7. Age (a)
- 8. Female principal code (a)

[&]quot;a" denotes mostly available.

[&]quot;m" denotes frequently missing.

As stated previously, the Summary Management Rating was implemented in 1979, the last year of the loan sample period. The form was used to give a systematic appraisal of a loan applicant's potential management ability. However, since very few of the loan files in the sample contained this form, this information could not be included in the variables that were analyzed across the entire sample.

As shown in Table III.B, most of the "financial and other business factors" variables were mostly available. However, variables that came from the actual and projected income statements were frequently missing.

This is attributable to the fact that, even though this information was required as part of the supporting materials making up the loan application package, it was not submitted on a standard form. Unlike the balance sheet, whose form is dictated by generally accepted accounting practices, the income statements varied enormously in format and detail. For this reason, it was difficult to obtain comparable income statement information from all of the loan files.

Two variables describing the terms of the loan were also difficult to obtain. The Loan Authorization (SBA Form \$529B) set forth all conditions of the loan. From this document the loan's maturity in months was readily available, as was the determination of whether or not the loan payments would be level. Many loans contained provisions that the interest rate

TABLE III.B

Financial and Other Business Factors

- Balance Sheet, actual and pro forma (a)
 - a. Cash on hand
 - b. Accounts receivable
 - c. Inventory
 - d. Total assets
 - e. Total liabilities
 - Income Statement, actual and projected (m)
 - a. Total sales
 - b. Cost of goods sold
 - c. Salary and payroll expense
 - d. Depreciation
 - e. Total expenses
 - 3. Use of Proceeds (a)
 - a. Land and building
 - b. Machinery and equipment
 - c. Working capital and inventories
 - d. Pay off SBA loan
 - e. Pay off other loans, notes, or payables
 - f. Other
 - q. Total
 - 4. Kind of business (existing, new, buy-out) (a)
 - Owners' net worth (a)
 - 6. Age of enterprise (a)
 - 7. Whether or not business is a franchise (a)
 - 8. Year of loan approval (a)
 - 9. Gross amount of loan award (a)
 - 10. Terms of loan
 - a. Maturity in months (a)
 - b. Average monthly payment (m)
 - c. Level payments? (a)
 - d. Interest rate (m)
 - 11. Amount of loan requested (a)
 - 12. Number of employees (a)
 - "a" denotes mostly available.
 - "m" denotes frequently missing.

could be adjusted according to various formulas and generally based on fluctuations in the prime interest rate. If the interest rate was not fixed, loan payments were not designated as level, and the average monthly payment and interest rate for that loan were not known.

IV. Results of Analysis

The main objective of this project is to determine the proportions of SBA loans, direct and guaranteed, that are in good standing and those that are not, and the reasons for those results. Since the sample is of Loans approved during the five years 1975-1979, the determination of the final status of all loans is not possible, nor was this the intention. At any point in time, the SBA characterizes its loans as belonging to one of the six status classes defined in Table IV.A. Table IV.A also contains a count of the number of loans in the sample falling into each group. counts in Table IV.A show clearly that the performance of guaranteed loans is better than that of direct loans. For guaranteed loans, 514 of 724 or 71 percent are either paid-in-full or current. For direct loans, the percentage in these categories is only 36 percent. Conversely, 19 percent of guaranteed loans are in liquidation or charged off, as compared with 45 percent of direct loans. In the uncertain area—consisting of loans that are deferred, past due and delinquent--there are 10 percent of guaranteed loans and 19 percent of direct loans.

A total of 127 of the 1014 loan observations fall into the uncertain categories which consist of the three status classes just cited. Each class is different, yet has too few observations to be amenable to analysis. Therefore, the three uncertain status classes were combined with the successful and unsuccessful categories. Deferred and past due loans were combined with successful loans, while delinquent loans were added to unsuccessful

TABLE IV.A

Status Classes—Definitions and the Number of Gwaranteed and Direct Loans in Each Class

	Status Class	<u>Definition</u>	Guaranteed Direct	Direct
	Paid-in-full	Loan has been paid-in-full by completing monthly payment schedule or if the business was liquidated, enough money was recovered from the sale of the assets to pay the outstanding loan balance.	293	44
	Ourrent	Loan has not reached maturity. Firm is making monthly payments on time.	221	59
	Deferred	SEA has allowed firm to delay payments on loan for 1-2 years.	70	22
25	Past Due	1-30 days late in payment.	17	8
	Delinquent	31-60 days late in payment.	33	27
	In Liquidation	Firm is more than 60 days late in payment. SBA is attempting to sell the assets of the business to recover the remaining loan balance.	ច	46
	Charged Off	SBA has recovered as much money as possible from the sale of the assets and has closed the business.	79	84
	Tota1		724	290

loans. It turned out that these combinations resulted in about half of the uncertain loans being allocated to the successful category, the other half to the unsuccessful category. This treatment makes it easier to present the data in tabular form without significantly distorting analysis.

Summary results using this two-way classification are presented in Table IV.B for guaranteed loans and Table IV.C for direct loans. The tabulations are presented by two areas for two industries. The two areas are defined by growth: the data from Florida and Texas are combined into one area called "South"; those areas are combined because they were selected to represent ones in which there was strong economic growth. New York and the Midwest, low growth areas, are combined into one region called "North." The auto and restaurant industries were combined because they are both service industries supporting the local economies. High technology industries, selected to represent growth industries in general, comprise the second industrial category.

Based on the dichotomous status classification, 76 percent of guaranteed loans are in the successful category (Table IV.B) as compared with 46 percent of the direct loans (Table IV.C). For guaranteed loans for both regions combined, more "high-tech" loans were successful (83 percent) than auto repair and restaurants (73 percent). So the growth rate of an industry appears to affect loan performance.

By region, higher economic growth leads to a higher success rate for loans. Eighty percent of guaranteed loans made in the South were successful, as compared with 72 percent in the North. As might be expected, the highest

success rate was for the high growth industry in the high growth region—84 percent for high-tech in the South. Conversely, the lowest success rate, 66 percent, was for average growth industries in the low growth region.

TABLE IV.B

Procentage of Successful Guaranteed Loans, 1975-1979

	North	South	<u>Total</u>
Autos & Restaurants	66%	79%	73%
High Tech	82%	84%	83%
Total	72%	80%	76%

Interestingly, for direct loans, the pattern is not similar (Table IV.C). Being in a high growth industry does little to assure success—46 percent of direct loans were successful with no difference between the two industry groupings. But, being in a high growth region does matter for the success of direct loans—56 percent of direct loans were successful in the South versus 37 percent in the North. In fact, the cell in Table IV.C with the highest success rate is auto repair and restaurants in the South, not high-tech.

TABLE IV.C

Percentage of Successful Direct Loans, 1975-1979

	<u>North</u>	South	<u>Total</u>
Autos & Restaurants	36%	57%	46%
High Tech	43%	50%	46%
Total	37%	56%	46%

Tabulations were made of a number of characteristics of the loan and the borrower for successful and unsuccessful loans. These tabulations, prepared separately for the two regions and two industries, for all loans, and for direct and guaranteed loans separately, are attached as an appendix to this report. The tabulations cover:

Loan Characteristics

Maturity

Level or Variable Interest Rate

Use of proceeds (land and buildings, material and equipment, working capital, repayment of SBA loan, repayment of other debts)

Average gross amount of loan

Business Characteristics

Franchise or nonfranchise

New business, existing business, purchase of existing business

Age of business

Number of employees

Assets, liabilities, net assets

Compensation, education, age, sex, veteran status, vocational education, years self-employed, and previous experience of owners.

From the analysis of Tables IV.B and IV.C it is clear that type of loan, economic growth rate of the area in which the business is located, and whether the industry is a high growth industry appear to affect loan performance. Study of the tables attached to this report suggested that only a few of the loan and business characteristics listed above appeared to have had an affect on loan performance. The three that appear to be most promising as determinants of loan performance are whether the business is a franchise, the number of employees, and the average number of years of experience of the owners of the business.

Table IV.D shows the performance of loans in the two regions and the two industries by type of loan for franchised versus nonfranchised businesses. Among guaranteed loans, 82 percent of those to franchised businesses were successful as compared with 74 percent for nonfranchised businesses. The margin of success of franchises was much higher among direct loan recipients—loans to franchised businesses performed successfully 69 percent of the time compared with a 43 percent success rate for direct loans to nonfranchised businesses. Having a franchise seems to mean more to an auto or restaurant industry company receiving a guaranteed loan in the North where growth was low, as compared with the South. In the North firms in those two industries succeeded 81 percent of the time if franchised, 61 percent if not. In the South the gap was only 3 percentage points. And, having a franchise "guaranteed" success in the high tech sector—there were no failures in that category, although there were relatively few guaranteed loans to high tech franchise businesses.

TABLE IV.D

Percentage of Successful Loans to Franchised and Nonfranchised Businesses, 1975-79, by Region, Industry and Loan Type

	<u>Guaranteed</u>				<u>Direct</u>		
	North	South	<u>Total</u>		<u>North</u>	<u>south</u>	<u>Total</u>
Autos and Restaurants							
Franchised	81	81	81		67	75	69
Nonfranchised	61	78	70		30	56	43
High Tech							
Franchised	100	100	100				
Nonfranchised	80	82	81		37	50	42
Total							
Franchised	81	82	82		67	75 ,	69
Non Franchised	68	79	74		31	55	43

For direct loans, the success rate differential for franchises was even greater than for guaranteed loans. No high tech recipients of direct loans were franchises.

Table IV.E contains data on the average number of employees per recipient of direct and guaranteed loans by industry and region. In every case recipients of direct loans had fewer employees than recipients of guaranteed loans. Recipients of loans in high tech industries had more employees than recipients in the auto and restaurant industries. And firms in the low growth region had more employees than firms in the high growth region. The number of

employees seems to be positively related to success for the high tech industries in the North, both for direct and guaranteed loan recipients. For the auto and restaurant industries, the number of employees appears to have little to do with success.

Mumber of Employees at Time of Loan in Businesses Receiving SBA Loans, 1975-79, by Industry, Region and Type of Loan

	Guaranteed				<u>Direct</u>		
	North	South	<u>Total</u>	North	South	<u>Total</u>	
Autos and Restaurants							
Successful	6.9	4.6	5.5	4.2	2.7	3.3	
Unsuccessful	7.1	6.5	6.9	3.8	1.9	3.1	
High Tech							
Successful	29 .9	9.5	21.0	12.8	4.8	9.8	
Unsuccessful	20.3	11.3	16.6	2.0	2.3	2.1	
Total							
Successful	16.7	6.0	11.0	5.8	2.9	4.1	
Unsuccessful	10.3	7.6	9.1	3.5	1.9	2.9	

Table IV.F contains data on the average years of previous experience of the owners classified by loan performance. Previous experience is the average of that of all the owners. In all but two cells of Table IV.F, owners of businesses with successful loans had somewhat more previous experience than owners of businesses with unsuccessful ones. The difference was rarely

more than two years, on average. Owners of high tech firms receiving both direct and guaranteed loans, on average, had more previous experience than owners in the other industry grouping.

TABLE IV.F

Previous Experience of Owners of Business Receiving SBA
Loans, 1975-79, by Industry, Region and Type¹

	<u>Guaranteed</u>					<u>Direct</u>	
	North	South	<u>Total</u>	North	South	Total	
Autos and Restaurants							
Successful	10	8	9	9	12	11	
Unsuccessful	8	7	8	10	9	9	
High Tech							
Successful	16	15	16	16	10	14	
Unsuccessful	14	13	14	12	7	11	
Total							
Successful	13	10	11	10	12	11	
Unsuccessful	10	8	. 9	10	9	10	

The next step in the analysis consisted of analyzing the variables, just analyzed singly, in the form of a regression capable of measuring their joint impact on loan performance. The dependent variable is a one-zero dummy whose value is set equal to one if the loan falls into the successful category, zero otherwise. An ordinary least squares (OLS) regression was

¹ Previous experience, measured in years, is an average for all persons reported as owners in each loan application.

judged to be a cost effective approach because the sample size for key subsets of the variables to be analyzed was large enough to meet the conditions set forth by Amemiya for using (OLS) to approximate a logit regression.²

As mentioned in an earlier section, human capital variables such as previous experience were not reported in as many loan files as were other variables about the business. As a result, regressions were calculated from two data sets. One was the full sample of respondents reporting data on franchise (or not), number of employees, and assets per employee plus owner. The second, and smaller, sample was one that also contained complete data on the set of human capital variables.

The results are presented in Table IV.G The industry, region, franchise, and loan type variables are all significant, and have correctly signed coefficients. Being in a rapidly growing industry or in a rapidly growing region or possessing a franchise, each contributes about the same to the success of a loan. The negative sign of the coefficient of loan type suggests direct loans have about one-half less chance of succeeding. Number of employees and assets per employee make marginal contributions to the results, but they are not statistically significant. Their inclusion does not affect the magnitudes or significance of the coefficients of the other four variables.

²Amemiya, T., "Qualitative Response Models: A Survey," <u>Journal of Economic Literature</u>, Volume 19 Number 4, December 1981, pp 1483-1536.

TABLE IV.G

Regression Results (t-Statistics in Parentheses)

Sample with No Human Capital Variables (985 observations)

<u>Variables</u>			
High Tech	.11(3.4)	.10(2.9	.11(3.1)
Direct	27(8.4)	26(8.1)	25(7.6)
Franchise	.10(2.5)	.10(2.5)	.10(2.3)
Hi Growth	.12(4.1)	.12(4.3)	.12(4.3)
No. of Empl		.001(1.4)	.001(1.7)
Assets/Empl		:	2.0×10 ⁻⁷ (1.8)
\overline{R}^2	.12	.12	.12

Sample with Human Capital Variables (797 observations)

$\overline{\mathbb{R}}^2$.13	.13	.13	.14	.14	.14	
	⁄ious ≥rience				.006(3.0)	.006(2.9)	.006(3.0)	
Asse	ets/Empl			1.5×10 ⁻⁷ (2)		1.4x10 ⁻⁷ (1.2	2)
No.	of Empl		.0009(0.	9)	.0004(0.5)			
Hi (Growth	.11(3.6)	.12(3.7)	.11(3.5)	.12(3.7)	.12(3.8)	.12(3.6)	
Fra	nchise	.10(2.3)	.11(2.3)	.10(2.1)	.14(2.9)	.14(2.9)	.13(2.8)	
Dir	ect	29(8.1)	29(8.3)	28(7.8)	29(8.3)	29(8.1)	29(7.9)	
Hig	h Tech	.10(2.7)	.09(2.3)	.11(2.8)	.067(1.7)	.064(1.6)	.074(1.9)	
Var	<u>iables</u>							

When the smaller sample with the human capital variables in it is used, the same specification shows no marked difference. Adding previous experience to those four variables alters the results substantially. Previous experience itself is significant. The most important change, however, is that the high tech coefficient becomes insignificant. This reflects the intercorrelation between the growth industry, "high tech," and the greater number of years of experience owners in that industry possess. It poses the question of whether high tech businesses succeed because of the demand for products and services they produce or because of the experience of their owners.

Thus five variables seem to be robust in determining loan performance. The four major ones are industry, regional growth, franchise status, and previous experience of owners. Other variables are undoubtedly important as well. Some of them are probably subsumed in the ability of a firm to get a guaranteed loan, since recipients of direct loans are significantly less likely to repay them than are recipients of guaranteed loans.

That the type of loan and previous experience of owners are significant suggests human capital variables are important to the outcome of a loan. The SBA, beginning in 1979, has begun to collect human capital type data in its "Summary Management Rating." The relationship between the overall point score of the rating and the loan performance is shown in Table IV.H by industry, region, and type of loan. There is some suggestion of a correlation between the rating score and the success of a loan. It is most apparent among guaranteed loans in the north. When the relationship is inverse the

gap never exceeds two percentage points.

TABLE IV.H

Overall Point Score in Summary Management Rating for Loans
Made in 1979, by Industry, Region and Type of Loan

	<u>Guaranteed</u>				<u>Direct</u>		
	<u>North</u>	South	<u>Total</u>	<u>North</u>	South	<u>Total</u>	
Autos and Restaurants							
Successful	70	68	69	61	69	66	
Unsuccessful	58	69	63	58	63	60	
High Tech							
Successful	76	80	77	68	79	77	
Unsuccessful	68	73	71	70	_	70	
Total							
Successful	72	70	71	62	72	68	
Unsuccessful	60	70	64	61	63	62	

V. Some Qualitative Findings

The analysis section of this report was based on data that were scientifically sampled and retrieved from the SBA loan data base. However, as described in the section on data collection, very few pieces of the data for any given file could the recorded without giving some thought to the whole picture of the business as represented by the loan file. For this reason, the data collection effort was a time consuming process whereby the data collectors not only recorded the pieces of information being sought, but also tried to make sure that the pieces fit together. This study could not, of course, consider the nonquantifiable characteristics of businesses or borrowers that cause or contribute to their inability to successfully repay an SBA loan. Yet it would seem appropriate to share in this section of the report some of the insights gained from the experience of literally "reading" hundreds of loan files.

It can be stated that the loan files sampled contained very few assertions that the borrower had attempted to defraud the Small Business Administration. The typical borrower had good intentions and believed that his business plan would work. In most cases the borrowers had risked everything they owned to secure the loans. While unfortunate circumstances can befall any business, large or small, generally a small business is less likely to have the financial and human capital necessary to sustain prolonged misfortune and remain viable.

One borrower in the loan sample received a loan to start a new business, a non-franchise fried chicken restaurant, to be located in a new shopping center. Shortly after it opened, a nationally known fried chicken restaurant was allowed to build an establishment in the same shopping center, a fact that the real estate agent for the shopping center appeared not to have told the borrower. The small businesss failed because it could not compete with the nationally known restaurant.

The owner of a gasoline station and repair shop had been the recipient of a loan for a short time when all convenient access to the business was obstructed by a lengthy road construction project. The small business was dependent on selling gasoline to passing cars which also brought in repair business. It was unable to pull through this period of several months when cars were reluctant or unable to stop because of the road construction project.

In another case, a restaurant/bar that had been helped by an SBA loan was just beginning to prosper when the owner accidentally killed a customer while trying to break up a fight in the bar. The owner was sentenced to serve a prison term and the business, which had otherwise been stable, failed.

In a surprising number of loan defaults and business failures, divorce appeared to be a significant factor. In some cases the financial and time commitments to the struggling business put a strain on the borrower's marriage, which resulted in divorce. In other cases, it was the borrower's divorce that subsequently caused financial pressures that affected the business and ultimately, the repayment of the loan.

A chronic problem among businesses in distress was that many borrowers stopped making payments for their business insurance. This left them vulnerable at a time when they were already at substantial risk of failure. The loss of business assets, whether through fire or theft, without insurance in effect, put most borrowers in hardship positions from which they never recovered.

Another source of difficulty in loan repayment arose from disputes among joint owners of a business. Frequently, disputes among partners resulted in lawsuits that debilitated the business or in one partner unexpectedly leaving the business (sometimes with all of the working capital!).

These kinds of factors cannot be quantified yet are important determinants of the success of a loan. Their importance is reflected, in part, in the regressions reported in the previous section. The low percentge of variance explained by the robust quantifiable variables, a common result in micro data analysis, reflects the fact that many unique factors are necessary for a full explanation of the behavior of micro-economic units.

SURVEY FORM - SBA LOAN FILES

	PRKI	A. DHIN FROM UCS FILE
	1.	Name of borrower
	3. 4. 5. 6. Tyr 7. Yes 8. Gro 9. SBI 10. Mar 11. Nur 12. Le 13. Ki 14. Ve 15. Fe	Loan number District office Industry (4-digit SIC) City code De of loan The provide of loan approval of loan award of loan a
5BA FORM NUMBER	PART	B. DATA FROM FILE FOLDER
Front of Folder	17	Franchise? [yes or no]if so, name of franchisor
5298	18	. Servicing Bank
5298	19	. Term of loan
		a. Maturity (in months) b. Average monthly payment c. Level payments? [i-yes; 2-no] d. Rate of interest
5298	29). Use of proceeds
		a. Land and building \$

4	21.	Loan amount REDLESTED \$
4	22.	Year business established 19
4	23.	Kind of business [1 - Existing; 2 - New; 3 - Purchase of existing]
4	24.	Number of employees
		a. At time of application b. If loan is approved
4	ු ක.	Total Collateral
		a. Present Market Value \$ b. Present Mortgage Balance \$
4	25.	Share of ownership and annual salary of owner(s), IN ORDER OF OWNERSHIP SHARE
		Ownership Rnnual Compensation
		a
912	27.	Year of birth of owner(s), IN ORDER USED IN #26
		a b c d e
413	20.	Personal financial statement(s) of owner(s), IN ORDER USED IN #25
	•	Total Total Assets Liabilities
		a. \$ f. \$ b. \$ b. \$ c. \$ h. \$ d. \$ i. \$

0353 111	29. Education of owner(s), IN ORDER USED IN #26 Years of Vocational Education
	Highest degree Highest grade obtained (after Related to this completed high school) Total type of business
	a. fo k. p. p p. q. d. l. q. d. l. q. d. l.
@353 111	30. Years of work experience of owner(s), PRIOR TO YEAR OF LOAN APPROVAL (SEE \$7) — IN DROER USED IN \$26 Number of years Number of years in this type of self-employed business
·	f f g
6353 111	Number of years of Year of Discharge a f. 19 b g. 19 c h. 19 d j. 19 e j. 19 19 19 19 19 19 19 20 21 21 22 23 24 25 26 26 26 26 26 27 28 28 28 28
	32. DUNS #
	34. Bank Rejection #2

1189	35. Sumary hanagement has 1719	
	1. Experience	
Kark Only One	3A Existing Business 3B New Business 3C Buy Dut	
	4. Bus. Knowledge 5. Human relations 6. Business Risk 7. Mgmt. Dep. on Dumer	
	B. Total Points .	
8353 100	37. IF NEW BUSINESS, start-up costs and source of s	funds
	b. Amount owners to furnish \$ c. Amount to be borrowed \$	
1198	38. Business financial statements	S
	Income Statement Items	Actual Projection
•	NUMBER OF MONTHS COVERED	MONTHS
•	DATE ENDED (MONTH / YEAR)	()
	a. Total Revenue (Sales)	s
	b. Total Cost of Sales	·
	c. Salary & Payroll Expense	\$\$
	d. Total Expenses	ss
	e. Depreciation	\$ \$
	Balance Sheet Items	PRO FORMA (#1117 OR #531)
	DATE ENDED (NONTH / YEAR)	(/)
	f. Cash on Hand	·
	g. Total Assets	· ·
	h. Accts. Receivable	ss
	i. Inventory	· ·
	j. Total liabilities	\$