



THE NATIONAL SURVEY OF SMALL BUSINESS FINANCES:  
DESCRIPTION AND PRELIMINARY EVALUATION

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**THE NATIONAL SURVEY OF SMALL BUSINESS FINANCES:  
DESCRIPTION AND PRELIMINARY EVALUATION**

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## Abstract

The Board of Governors of the Federal Reserve System and the Small Business Administration sponsored the National Survey of Small Business Finances (NSSBF) in 1988. The NSSBF collected data from a national sample of 3,600 small business firms inventorying their use of transaction accounts, other deposit and investment accounts, and credit services by source as well as obtaining a balance sheet, an income statement, and other characteristics of the business. A major concern of the study was to assess the degree to which small businesses rely on local commercial banks for credit, transactions, and deposit services, information that may have implications for public policy on mergers and deregulation in financial markets. The survey was intended, however, to serve a much broader purpose of providing basic data needed to address a wide range of issues in small business finance. This paper provides the first report of the purpose, content, and basic procedures used for the survey and presents a preliminary discussion of the coverage and overall response.

## I. Introduction

Small businesses account for about a third of employment and sales of US industry and a majority of its growth (US Small Business Administration 1988b). Yet despite the importance of small businesses in our economy, relatively little is known about the financial position of small firms.

To obtain basic data on small businesses, the Board of Governors of the Federal Reserve System and the Small Business Administration sponsored the National Survey of Small Business Finances (NSSBF) in 1988. The NSSBF collected data from a national sample of 3,600 small business firms inventorying their use of transaction accounts, other deposit and investment accounts, and credit services by source as well as obtaining a balance sheet, an income statement, and other characteristics of the business. Interviewing was conducted by Research Triangle Institute (RTI).

A major concern of the study was to assess the degree to which small businesses rely on local commercial banks for credit, transactions, and deposit services. This information may have implications for public policy on mergers and deregulation in financial markets. The survey was intended, however, to serve a much broader purpose of providing basic data needed to address a wide range of issues in small business finance.

The NSSBF is the first attempt in several decades to collect comprehensive financial information from a nationally representative sample of small businesses (Acs and Audretsch 1989). The dearth of experience in surveying small businesses was a problem at virtually all stages of the survey -- from development of the sampling design and data collection procedures to data preparation. This paper provides the first report of the purpose, content, and basic procedures used for the survey and presents a preliminary discussion of the coverage and overall response.

## II. Background and Objectives

One of the regulatory functions of the Federal Reserve Board is to determine whether proposed mergers or acquisitions of bank holding companies and of certain banks are anticompetitive. This task requires empirical delineation of the economic markets in which banking firms operate. Current analysis relies on research and court decisions that are more than two decades old. A major purpose of the NSSBF was to determine how banking markets should be delineated for small businesses. Data needed for this task also provide information about other issues associated with small business finances.

### ***Bank Market Definition***

Historically, the financial system in the US has been characterized by legal constraints that segmented markets along institutional lines. Thus, commercial banks provided business credit and checking services, credit unions provided consumer loans, and savings and loan associations provided mortgages. This market segmentation was recognized in the Supreme Court's decision in the 1963 Philadelphia National Bank case which forms the basis for the current approach to bank market definition. Considering the evidence available at that time, the court concluded that because customers generally obtained multiple financial products from one place, only firms offering the

full array of commercial bank products should be included in bank markets (in other words, commercial banking was a distinct and separate line of commerce). Furthermore, the court determined that banking markets were limited to small geographic areas because the bulk of banking business was conducted with local customers. Small businesses (and households) were considered to be constrained in their choice of financial product suppliers. Subsequent survey research conducted in conjunction with individual bank merger and acquisition cases supported the court's decision, and in the 1974 Connecticut National Bank case, the Supreme Court reaffirmed its earlier decision.<sup>1</sup>

Sweeping regulatory changes, advances in technology, and financial innovations have occurred since the Connecticut decision. Most notable are the regulatory changes empowering savings institutions to offer traditional bank products (checking accounts, commercial loans, and consumer credit), the emergence of nondepository institutions (money market mutual funds) as competitors of depository institutions for household savings accounts, and technological changes (such as electronic fund transfer technology) reducing depository and nondepository institutions' cost of delivering financial services to final users. These changes make the current approach to bank market definition appear increasingly antiquated. Critics argue that the provision of bank products takes place in a market that includes both thrifts and nondepository institutions as well as banks. They also contend that the geographic market in which these firms operate has national, if not international, dimensions. While large businesses have access to a variety of sources of financial products in a national or international market, there is little information about the sources and geographic extent of small business financial dealings. Except for data collected in conjunction with individual bank merger applications, recent evidence is limited to two surveys conducted during 1981: a Federal Reserve Bank of Atlanta survey of small businesses in the Sixth Federal Reserve District (Whitehead 1982) and survey of small businesses in Ohio sponsored by the Federal Reserve Bank of Cleveland (Watro 1982).

The need to study product and geographic markets dictated that NSSBF collect data along two dimensions (see Wolken 1984). First, to delineate geographic markets, the survey obtained information on the geographic location of suppliers of financial products relative to the small business. Second, the survey collected an inventory of the different financial products that the firm obtained from each supplier to determine whether the business obtains services as a "cluster" from a single institution or purchases them separately from different institutions (in other words, whether banks compete in a single product market or in several separate product markets).

### *Other Survey Objectives*

The bank market definition problem is only one component of the study of how small businesses finance their activities. In a modern economy, business firms invest in real assets to carry on production. Finance is concerned with the questions of how much the firm should invest and how it should obtain funds to pay for these investments.

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1. For an extended discussion of the issues, see Federal Reserve Bank of Atlanta (1982).

Important considerations for the small business are the cost and availability of credit to finance its operations.

Motivated in part by concerns about the effects of monetary policy on credit availability, the federal government sponsored several studies of small business financing after the Second World War (Bridge 1948; Bridge and Holmes 1950; McHugh 1951; McHugh and Ciaccio 1955; Board of Governors 1958; Stockwell and Byrnes 1961). These surveys showed that bank financing dominated all other sources of outside financing, supporting the view that availability of bank credit was an important determinant of small business investment. The majority of funds for investment, however, were obtained from owners. This suggests that a broader perspective than one focusing solely on banks is needed to understand small business finances. Unfortunately, most efforts to collect financial data from small businesses were abandoned after the 1950s.

Since these early studies, advances in economic theory have enhanced the ability of researchers to study business finances. Modigliani and Miller's (1958) pathbreaking work, which demonstrated that the value of the firm is independent of its source of financing in a perfect capital market, motivated substantial theoretical analysis of the effects of market imperfections (such as differential tax rules, transactions costs, agency costs, and asymmetric information) on the cost and availability of alternative sources of financing (see Miller 1988; Weston 1989). These market imperfections may have a greater effect on smaller firms than on larger firms, providing a basis for empirical analysis of how the behavior of smaller firms differs from that of larger firms (Pettit and Singer 1985). However, adequate data are not available for this purpose. Existing surveys generally do not cover all sources of financing (Dennis 1985; Dennis and Dunkelberg 1988) or have limited or incomplete coverage of the small business population (Ando 1985; Combs, Pulver, and Shaffer 1979; Dennis 1985; Dennis and Dunkelberg 1988). A few sources provide summary statistics of data from prepared balance sheets (Internal Revenue Service 1988a, 1988b; US Bureau of the Census 1987; Robert Morris Associates 1988). While these sources include all sources of financing, they provide little or no information on the identity of the sources of financing or on demographic characteristics of the firms.<sup>2</sup>

The NSSBF collects a complete balance sheet and identifies the sources of financing to the firm. It also collects information on the ownership and management characteristics of the firm, collateral and guarantor characteristics of the firm's debts, and extent of use of cash services. This information permits empirical analysis of many of the basic questions on small business financing (Ou 1986; Pettit and Singer 1985).

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2. Ou (1986) reviews previous surveys and other data sources on small business finances in greater detail.

### III. Sample Design

The NSSBF collected data from two samples: a national sample of approximately 3,600 small businesses and a supplementary sample of roughly 400 firms having SBA-guaranteed loans. The procedures for the SBA sample were comparable to those used for the national sample. This discussion focuses on procedures used for the national sample.

#### *Definition of the Target Population*

The target population for a survey is the entire set of elements about which inferences will be made using the survey data (Cox and Cohen 1985). For the NSSBF, the target population was defined to be all nonfinancial and nonfarm small business enterprises in the US in operation as of December 1987.

A firm was considered to be small if it had fewer than 500 full-time equivalent employees. This definition is one commonly used by the Small Business Administration in its reports (see, for example, Small Business Administration 1984, 1986, 1988b).<sup>3</sup> Large firms were excluded from the target population because they typically have access to a national market for financial services and thus generally are not a concern in bank antitrust cases. Moreover, a large amount of publicly available data already exist for large businesses.

Nonfinancial and nonfarm business was defined as all privately owned and for-profit businesses, excluding industry groups: (1) agriculture, forestry, and fishing; (2) finance and insurance underwriting; and (3) real estate investment trusts. Some industry groups (especially utilities, transportation, and educational services) contain both privately and publicly owned entities as well as for-profit and not-for-profit firms. Ineligible firms in these industry groups were identified in a screening interview, which is discussed in a later part of this paper.

These restrictions correspond to the definitions for the nonfarm, noncorporate business and corporate nonfinancial sectors in the Federal Reserve Board's flow of funds accounts (Board of Governors 1980). In addition to conforming with extant statistical programs, the restrictions eliminate from the target population several types of organizations that differ substantially from most businesses. The nature of financial firms' business (financial intermediation) makes their behavior differ from that of other business firms. Moreover, detailed financial data are available for many financial firms. Publicly owned and not-for-profit firms are excluded because their peculiar objectives and environment give rise to different record keeping procedures than those used by for-profit firms. Agricultural firms, on the other hand, are often small and operate in rural markets where bank antitrust problems are likely to arise. However, adequate data are routinely collected for agricultural firms (US Department of Agriculture 1988), and the existence of substantial federal programs for agriculture mitigates concerns about adverse effects on credit availability for this industry.

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3. Total sales are also commonly used to measure the size of a businesses. Using total sales to define the target population for NSSBF would have been impractical, however. See the discussion in the following text regarding alternative sampling frames.

An enterprise was defined as an aggregation of all offices, branches, and subsidiary companies under common ownership and control. An enterprise may be a single, independent establishment or a company with multiple branches or subsidiaries. While production and sales occurs at the subsidiary or branch level of the firm, financial decisions typically are made at a higher level and encompass all branches and subsidiaries of the firm. This approach is similar to the Census Bureau methods for financial surveys of businesses (Federal Committee on Statistical Methodology 1988).

Firms that were no longer in business, bankrupt, or in business less than a month at the time of the interview were also ineligible for the survey. At the target date, the finances of such firms would not reflect those of a going concern.

### *Sampling Frame*

The sampling frame is a list or mechanism used to identify population elements for sample selection purposes. The ideal frame is a list of all population members with sufficient data to identify and locate each member (Cox and Cohen 1985). Thus, the utility of a particular sampling frame also depends on the method chosen for data collection. Cost considerations led to the decision to use telephone data collection for the NSSBF. For this reason, availability of telephone numbers was a crucial consideration in selecting a sampling frame.

The sampling frame for the NSSBF was constructed from the December 1987 Dun's Market Identifier (DMI) file. The DMI file combines the old Dun and Bradstreet data file, which contained firms applying for credit or purchasing commercial insurance, and a business telephone listings file. The addition of firms from the telephone listings file reduced the coverage problem of the old program, although there is still some undercoverage of very new firms, firms with few employees, and sole proprietorships (Iannacchione, LaVange, and Duffer 1986). Nevertheless, the DMI file is believed to have good coverage of businesses with employees.<sup>4</sup> The DMI frame has several desirable features as a sampling frame. Information on the DMI file includes the business address, telephone number, main office/branch status, standard industrial classification (SIC) code, and the name of the owner or principal executive officer. This information facilitates selection of the sample and establishment of contact with the appropriate person in the firm. Moreover, the DMI file is updated regularly, making its obsolescence rate compare favorably with other publicly available sampling frames.

To construct the sampling frame, all DMI records with ineligible SIC codes as well as records for branch offices and subsidiary companies were eliminated. The DMI variable for employment was not used to eliminate large businesses because it was often missing and was not defined in terms of full-time equivalents. Instead, information collected in the screening interview was used to eliminate firms with more than 500 employees and not-for-profit or publicly owned firms.

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4. The SBA estimates that the DMI file accounts for about 93 percent of private employment in the US (US Small Business Administration 1988b). Also see US Small Business Administration (1988a) for discussion of DMI coverage issues.



### ***Alternative Sampling Frames***

Several alternatives provide potentially better coverage than the DMI file. One alternative is an area sampling based frame. Such a frame could be constructed by selecting a sample of geographic areas and listing all businesses located in these areas. In principle, such a sample frame would be comprehensive. However, it is sometimes difficult to recognize commercial structures. As a result, the coverage actually achieved would be less than comprehensive. Moreover, listing the individual business in an area is expensive, and information on SIC classification and main office/branch status are not available for eliminating study ineligibles.

The Bureau of Labor Statistics' Employment and Wages (ES-202) file provides comprehensive coverage of firms that employ five or more persons and are active in the first quarter of the year. Telephone numbers are not available, and identification of the headquarters of the firm is difficult for firms that operate in more than one state because a main office is designated for each state in which the firm has branches. Permission would need to be obtained from each state, and state confidentiality would apply to use of the data, which could cause problems.

IRS tax returns provide comprehensive coverage of the population of businesses. Tax returns themselves are timely, but the time required to construct a sample frame from tax returns would introduce obsolescence problems.<sup>5</sup> Also, tax returns do not provide telephone numbers. Tracing procedures would be required to obtain telephone numbers and identify firms that had gone out of business, but results would not be completely accurate. The main problem of a tax-based sample frame, however, is the severe confidentiality restrictions on data use, which would likely yield a low response rate.<sup>6</sup>

In sum, area sampling-based and tax-based sample frames would not in practice provide comprehensive coverage of the population of small businesses for this survey. The DMI file provides adequate but not comprehensive coverage, is probably at least as timely as the other sample frames, and contains information not readily available from the other frames that facilitates sample selection and interviewing.

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5. For example, the IRS provided a 1980 sample frame for the high-income sample in the 1983 Survey of Consumer Finances (Avery and Elliehausen 1988). Evidence suggests that business lists deteriorate at a rate of about 1 percent per month (Converse and Heeringa 1984). Thus, a similar delay in producing a tax-based sample frame might result in 15 to 20 percent obsolescence rate.

6. For the high-income sample of the 1983 Survey of Consumer Finances, the Comptroller of the Currency (which, like the IRS, is part of the Department of Treasury and can legally obtain tax data) sent potential participants a letter requesting participation in the survey. The Survey Research Center of the University of Michigan, the organization conducting the interviews, was allowed to contact only those individuals who notified the Comptroller that they were willing to participate. This procedure yielded a 9 percent response rate. Under the best circumstances, such procedures have yielded no better than a 30 percent response rate (Avery and Elliehausen, 1988).

### *Coverage of DMI Sampling Frame*

To evaluate coverage issues further, we compared frame counts for establishments on the DMI file with statistics on business tax returns compiled by the Statistics of Income Division of the IRS (Internal Revenue Service 1988a, 1988b, 1987). Exact comparisons are not possible, but IRS statistics provide some basis for evaluating the DMI file's coverage of the universe of interest for this study.

Before discussing our findings, several conceptual differences between the IRS and DMI lists should be noted. First, the IRS unit of observation is the business tax return. Firms owning other firms have the option of filing consolidated returns for the enterprise or separate returns for each company. Hence, IRS statistics overstate the number of corporate and partnership enterprises. Next, IRS statistics include firms that were active at any time during the year, while the NSSBF includes only those firms that were in business at a specified point of time. Thus, IRS estimates of the population of businesses will be larger because they count firms that change ownership more than once and include firms that went out of business before the reference date and firms that started operations after the reference date. In addition, IRS estimates include firms with more than 500 employees. This is not a large number, however, and it primarily affects the corporation total.<sup>7</sup> With these caveats, we present some results of our preliminary work.

The DMI estimate for number of corporations is not much smaller than the IRS estimate.<sup>8</sup> Both data sources indicate that the majority of corporations were engaged in retail trade and services. The distribution of corporations by industry groups is also similar, although the DMI list contains proportionately somewhat fewer service and real estate firms and more manufacturing and trade firms than the IRS list. Hence, our preliminary work suggests that the DMI file's coverage of corporations is good.

The DMI estimate of the number of proprietorships, on the other hand, is substantially lower than the IRS estimate. In both lists, proprietorships are more concentrated in the service and construction industries and less concentrated in manufacturing than either partnerships or corporations. The DMI list underrepresents proprietorships in all industry groups. The DMI file contains a greater proportion of trade firms and a smaller proportion of services than the IRS list.

A large part of the coverage problem for proprietorships appears to arise from a lack of coverage of businesses without employees. Businesses without employees are mostly proprietorships. They are often part-time businesses and are not easily identified. These firms include, for example, individuals for whom part-time self-employment is a secondary occupation. Zero-employee firms are a large proportion of the

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7. There is one further discrepancy. These preliminary comparisons are based on the latest available published statistics -- 1985 for corporations, 1984 for partnerships, and 1983 for proprietorships. The IRS totals for 1987 would be somewhat different from the numbers we used.

8. The DMI file does not identify ownership form. We estimated the distribution of firms by ownership form within industry groups using results from the NSSBF.

total number of businesses in the US, although they probably account for a small share of total revenues, assets, or employment. Other than tax return data, the most complete coverage of zero-employee firms is from household surveys such as the Current Population Survey or the Survey of Consumer Finances, which provide data on self-employment.<sup>9</sup>

The DMI file's coverage of partnerships is not as good as its coverage of corporations but better than that of proprietorships. The most severe under-coverage of partnerships is found in the real estate industry. Again, the undercoverage of partnerships may be associated with zero-employee firms.

### *Sample Selection*

To develop the sample design, frame counts were obtained for various reporting domains. Reporting domains of interest for which DMI information was available include industry, Census region, urban/rural location, number of employees, and sales. The distribution of firms indicated that rural firms would have to be oversampled to achieve approximately equal precision by urban/rural location. Similarly, larger firms would have to be oversampled to achieve equal precision across all size groups of firms. Because one-third of all records had missing values, sales would be unsuitable for use in stratification. In contrast, only 12 percent of records had missing values for number of employees.

The sample frame was partitioned on the basis of Census region (Northeast, North Central, South, and West), urban/rural location (firms in MSAs are classified urban; all others are classified rural), and firm size (small=1-49 employees, medium=50-99 employees, and large=100 or more employees).<sup>10</sup> DMI frame counts for these strata and their allocated sample sizes are presented in Table 1.

The choice of strata and allocation of completed interviews to strata was based on consideration of three constraints:

- (1) the size of the final sample should be 4,000 completed interviews;
- (2) domain estimates for small firms for each region and urban/rural location should have approximately equal precision; and
- (3) domain estimates for medium and large firms in urban and rural locations should have approximately equal precision.

The decision was to create 24 strata, allocating 400 completed interviews to small firms in each region by urban/rural location category, 200 completed interviews to medium firms in each urban/rural location category, and 200 completed interviews to large firms in each urban/rural location category. For medium and large firms, the completed interviews were allocated proportional to population size within each Census region to reduce the effect of unequal weighting. Simple random sampling was used to select firms from each stratum.

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9. For further discussion of firms without employees, see US Small Business Administration 1983, 1986, 1988a.

10. As mentioned, the DMI file contains records in which the number of employees is missing. For purposes of sample selection, these firms were classified as small.

#### IV. Questionnaire Development

The survey materials were developed in an iterative process involving four rounds of cognitive testing, which sought to determine respondents' understanding of questions and ability to provide answers, and one formal pretest. Exhibit 1 outlines the topics covered by the resulting NSSBF questionnaire. The NSSBF asked respondents to report a large amount of financial data. Most respondents would not be able to report the requested financial data accurately without consulting records. For this reason, the survey design called for mailing worksheets listing the financial information to respondents.<sup>11</sup> The information on the worksheets was then to be collected in telephone interviews. The use of telephone interviews to collect the data was intended to achieve a higher response rate and better quality of information than is typically obtained in mail surveys. This section discusses the problems encountered in developing the questionnaire and data collection strategy.

##### *Cognitive Testing*

As discussed earlier, the survey objectives involving public policy toward commercial banks required collection of an inventory of financial services by source. The information could be obtained either by listing the sources of financial services and then asking about the financial products obtained at each institution or by taking an inventory of services and identifying the sources of each service. Testing results indicated that it was easier for respondents to identify the financial product first and then list the sources.

Analysts may want to group financial products in different ways. For example, it may be necessary to group loans by maturity for some purposes and by collateral for others. Thus, a high degree of disaggregation is desirable. While firms have a small number of some financial services (such as checking accounts and credit lines), they may have a large number of other types of financial services (for example, automobile lessors may have many motor vehicle loans). Testing indicated that higher levels of aggregation increased the complexity of the questionnaire, and respondents often had greater difficulty answering questions. Some aggregation, however, was necessary to avoid extremely burdensome interviews for some respondents. The types of financial services most likely to cause problems -- mortgages, motor vehicle loans, and equipment loans -- were categories that respondents had little trouble understanding and that tended to be relatively homogeneous. Hence, workable questions could be developed without sacrificing analytical flexibility.

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11. Due to the complexity of the data collected, limitations and reliability of the data available on the sample frame, and the potential for sample frame obsolescence, several contacts were necessary prior to collecting the main questionnaire data. The steps followed to collect the data were (1) draw sample firms from sampling frame; (2) screen firms by telephone to identify ineligibles and verify frame data (for example, address); (3) mail a package of materials, including a worksheet to prepare in advance of the interview to allow firms to assemble records, consult accountants, etc., and finally (4) administer questionnaire. Each of these is discussed in greater detail below.

Another problem was to develop a structure for collecting reasonably consistent financial data from all firms in the sample. Several obstacles were encountered. Accounting practices, developed for controlling the operations of business firms rather than reporting economic value, are not uniform. Larger firms tend to have greater coordination and monitoring needs and thus more complex records than smaller firms. Similarly, partnerships and corporations tend to have more sophisticated records than proprietorships. Federal tax returns provided a nearly common basis for reporting balance sheet items for partnerships and corporations. The worksheet and questionnaire identified the appropriate lines from the tax forms for each item requested.<sup>1 2</sup> Proprietorships, however, do not normally prepare balance sheets. They had to be instructed how to construct a balance sheet.

The informal tests revealed that some questions were best answered by the firm's accountant while others were best answered by an owner. Many owners, partners and stockholders as well as proprietors, did not understand accounting terms. Accountants, however, often did not know the meaning of terms defining financial services. Therefore, definitions were provided for all items on both the worksheet and the questionnaire.

Owners of small firms tended to describe personal finances even though they were instructed to report business finances only. This problem was especially severe for proprietors, who typically commingle their business and personal finances. As a consequence, instructions were developed to provide guidance in separating business and personal finances.

Testing also revealed that respondents' willingness to respond varied substantially for different types of questions. Few respondents were sensitive to questions about the general characteristics of firms. Interviewers encountered somewhat more resistance to questions about use of financial services. Few respondents refused to acknowledge use of different services or to identify the source from which it was obtained. Some respondents were willing to report sources but refused dollar amounts. Income statement and balance sheet questions encountered the most resistance. Many respondents refusing income and balance sheet questions viewed this information as confidential. Lack of understanding of accounting terms also contributed to respondents' reluctance to answer these questions.

Some respondents were unwilling to report aggregate debts or cash holdings in a balance sheet, even though they had reported dollar amounts of individual debts and accounts. For the pretest and main study the questions were ordered based on this experience: questions about general characteristics of the firm were asked first, and then data concerning the sources of financial services were collected. The income statement and balance sheet were at the end. Thus, for some firms, partial balance sheet information could be constructed from responses to questions about financial service use, even when balance sheet questions were refused.

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12. Respondents sometimes had to add two or more lines or to disaggregate items reported on a single line on the tax form.

### ***Pretest***

A formal pretest was conducted for small samples of firms from the DMI and SBA lists. Responses were obtained from 26 of 45 eligible respondents from the DMI sample. Thirteen of the firms refused. The remaining cases were partial interviews, which were not completed due to time constraints.

The pretest indicated the need to use experienced interviewers for the main study. The inexperienced interviewers had great difficulty in obtaining responses. Knowledge of accounting, on the other hand, was useful but not necessary for interviewers.

Respondents appeared to have few problems answering the financial service questions about their use of financial services, although dollar amounts reported on this part of the questionnaire often appeared to be estimates. Some respondents had difficulty with the income statement and balance sheet. Refusals and don't know responses were also a problem for these cases. In many instances, accounting identities were not satisfied. Expert reviewers could sometimes discern the problem, however. Relationships between balance sheet items (the latter part of the questionnaire) and the financial services inventory (collected earlier in the interview) were useful in identifying where mistakes occurred.

A major problem in the pretest was that many respondents did not complete the worksheets. As a result, dollar amounts were often rounded and inaccurate. Several measures were taken for the main study to increase use of the worksheets. First, respondents were contacted much sooner after the mailout packages were sent. This measure was intended to reduce the number of lost and discarded worksheets. Second, the worksheets were remailed to firms that lost, discarded or did not receive them and then recontacted respondents after remailing. Finally, when interviewers discovered that respondents had not completed worksheets, respondents were encouraged to do so, and the interviews were rescheduled for a later date.

## **V. Implementation and Response**

Based upon the results of the four rounds of testing and pretest, a data collection strategy evolved. The approach began with a short screening interview to determine study eligibility and to confirm the mailing address. A lead letter package and worksheets were then mailed to the business. After a 10 day delay, the business was contacted by telephone and questionnaire data collected including worksheet responses. At the conclusion of the interview, the interviewer asked the respondent to mail the worksheet and the records he used in answering the questions. This section discusses the results of this data collection approach.

### ***Screening Results***

Screening interviews of firms selected for participation were conducted to determine eligibility and to correct inaccurate information on ownership, telephone number, and address. Because the eligibility rate was unknown, screening was scheduled in waves. Each wave was a random sample. Thus, estimates of eligibility from the early

waves could be used to select a sufficient number of firms in the fourth wave to yield the desired number of eligible firms.

A total of 8,017 firms from the DMI file were screened (Table 2). Of these firms, 5,280 firms (66 percent) were determined to be eligible, and an additional 267 firms (5 percent) indeterminable.

Virtually all of the ineligible firms can be classified into one of two categories. The first category, consisting of ineligible types of businesses, contained 969 firms (12.1 percent of screened firms). About 57 percent of these 969 firms were not-for-profit or publicly owned, 28 percent were not the main office of the firm, 9 percent had more than 500 employees, and 6 percent were subsidiary companies.

The second category contains firms that were no longer in business. About 17 percent of the sample was in this category: 921 firms where the owner or another knowledgeable person reported that the firm was out of business, and 452 firms which had no directory listing and could not be traced through calls to their top executive, the Better Business Bureau, the Chamber of Commerce, local libraries, and the telephone company.

### *Interviewing and Response*

After completion of screening, packages were mailed to respondents containing letters from the Chairman of the Board of Governors of the Federal Reserve Alan Greenspan and RTI's president urging participation in the survey, a question and answer pamphlet about the survey, and the worksheets. Ten days after packages were mailed, interviewers began telephoning respondents. The pretest had indicated that most respondents could not complete the interview in one session. Initially we planned to have the interviewer ask the general questions about business characteristics first and then break off the interview if the respondent had not completed the worksheets. Early results, however, indicated that the bulk of the sample was very reluctant to respond or difficult to reach. In addition, not having completed the worksheets was clearly being used as a "put off" technique by the respondents. To alleviate this problem, interviewers were instructed to allow a breakoff only when they were convinced the respondent intended to complete the worksheets. Otherwise, the interviewer would encourage respondents to get any records they had and continue the interview.

Obtaining response was a continuing problem throughout the interview process with two primary sources for the difficulty: (1) respondents did not want to respond to a survey that asked for such sensitive, confidential data and (2) establishing contact with the owner and finding an appropriate time for interview was often problematic. This difficulty in establishing contact and gaining cooperation was reflected in the number of contacts needed to complete screening and the interview.

An average of 4.3 calls were made for each business selected for screening with 3.1 calls made for completed screenings, 4.9 calls for nonrespondents, and 9.6 calls for unable to contact firms. For the interview itself, 11.6 calls were made on average for each sample business with 10.4 calls made for totally complete interviews, 20.3 calls for partial interviews, 10.9 calls for total nonrespondents and 19.2 calls for unable-to-contact businesses.

Since obtaining response was so problematic for this study, we set up four separate response status indicators for the interview: the first for Section I where business characteristics were discussed, the second for Section II where financial services used by the firm were enumerated, the third for Sections III-V where the income statement and balance sheet were obtained and the fourth for the questionnaire as a whole. For completed questionnaires and work in progress, we evaluated the individual section response status indicators by tabulating the frequency of missing data in the data base. When too large a percentage of the items in a completed section were missing, the respondent was telephoned to obtain the missing data. Data were obtained for approximately 60 percent of these reopened cases.

The data collection goal was to achieve a 75 percent response rate among study eligibles. During the data collection process, it became clear that achieving this goal might not be possible. From the beginning days of the survey, respondents demonstrated great reluctance to participate in the study. As an example, during the first week of data collection, interviewers averaged less than one completed interview per interviewer-day worked (an 8-hour shift). In part this result was due to the lack of interviewer experience in questionnaire administration. Various measures were taken to boost production including staff retraining, reassignment of personnel, changes in working hours, incentives, etc. Production increased markedly peaking at 3-4 completed interviews per interviewer-day. The bulk of time was spent in trying to establish contact with respondents and to convince them to participate. The interview itself averaged 50 minutes in length.

Table 3 presents results of the data collection process. An interview was considered complete if the respondent provided answers to the majority of the financial inventory questions in Section II. When all possible nonresponse follow-up approaches had been exploited, we achieved a 71 percent response rate for the DMI survey. Of these respondents, 93 percent had completed all survey sections including the income statement and balance sheet sections. Breakoffs were more frequent than typically found in sample surveys, and they occurred at all points in the survey questionnaire. To illustrate, 24 percent of the nonrespondents stopped after having provided all Section I data on characteristics of their business.

Note that in spite of having screened for eligibility, we had 6 percent of the fielded DMI sample classified as ineligible. These survey ineligibles included ineligible business types (for example, farms) with incorrect SIC codes, subsidiary companies and large businesses not correctly identified in screening, and companies that had gone out of business since screening or were not truly in business. The latter source of ineligibility often was identified after the interview was nearly complete. In recording income, the interviewer would encounter no sales and no expenses. Probing in these cases usually determined that the business had been actively pursued in the past but was now totally inactive.

Table 4 presents response rates by selected reporting domains. There was little difference in response rates by firm size. When firms were grouped by other criteria, however, some differences in response rates were found. Rural firms were more likely than urban firms to complete interviews. By region, the response rate was lowest in the



northeast (68 percent) and highest in the south (74 percent). Among industry groups, response rates ranged from 68 percent in transportation, communication, and public utilities to 75 percent in mining and manufacturing and in wholesale trade industries.

### *Use of Worksheets*

Despite all efforts to encourage use of worksheets, only about 20 percent of respondents reported having completed worksheets (table 5). We expected worksheets to be more useful to proprietorships than partnerships or corporations because proprietorships would not have prepared financial statements. We found the opposite result: corporations were more likely than other organization forms to have completed the worksheets. Among the other groups examined, larger firms and manufacturers were more likely than smaller firms and firms in other industries to have completed worksheets. However, there were no apparent differences on worksheet use by Census region or urban/rural location.

Firms were more willing to use records than to complete worksheets. About 34 percent of respondents reported consulting records to answer questions about financial institution relationships, and 47-50 percent used records to answer the income statement and balance sheet questions. Corporations, larger firms, and manufacturers were more likely than other groups of firms to consult records.

In all groups, accounting records were the most commonly used records for questions about financial institution relationships. Use of accounting records increased with firm size. Nearly three-fifths of the records used by partnerships and corporations were accounting records. Nevertheless, a large proportion of records used in all groups was bank or tax records. In contrast, tax records were the most commonly used records for the income statement and balance sheet, probably because the worksheet and questionnaire indicated on which line of income tax forms each item could be found. Proprietorships were more likely than other organization forms to use tax records for the income statement. However, that was not true for the balance sheet. Tax records were less useful for this purpose because proprietorship tax forms do not include a balance sheet, although tax records contain some items (especially inventory and property) that appear on a balance sheet. For both the income statement and balance sheet, the use of tax records declined with firm size.

A few additional preliminary observations about responses and use of worksheets and records are worth mentioning. Most respondents had little difficulty in reporting about financial institution relationships. Dollar amounts were the most difficult questions in this section. Many estimated dollar amounts here but later consulted records to report income statement and balance sheet items. Small firms' failure to use worksheets or records was troublesome, but most of these firms appeared to have simple finances. Major items appear to be reported, although dollar amounts are often estimates. Items such as prepayments, deposits, and accrued expenses and taxes payable are likely to be underreported. However, these items tend to be relatively small amounts. We will be able to say a great deal more about these issues in a future paper.

## VI. Conclusions

This paper provides the first description of the purpose, content, and basic procedures used for the National Survey of Small Business Finances and presents a preliminary discussion of the coverage and overall response of the survey.

A major concern of the study was to assess the degree to which small businesses rely on local commercial banks for credit, transactions, and deposit services. This information was expected to illuminate issues associated with public policy concerning banking mergers and deregulation in financial markets. The survey was intended, however, to serve a much broader purpose of providing basic data needed to address a wide range of issues in small business finance. Our initial analysis suggests that the survey goes a long way towards accomplishing these objectives.

The NSSBF collected data from a national sample of 3,600 small business firms inventorying their use of transaction accounts, other deposit and investment accounts, and credit services by source as well as obtaining a balance sheet, an income statement, and other characteristics of the business. Corporations, partnerships, and sole proprietorships were included in the sample.

It appears that reasonably good coverage of firms with employees was obtained using the DMI file for a sampling frame. Theoretically, the more comprehensive tax-based sample frames provide better coverage of the population of small businesses, but restrictions on their use make their actual coverage much worse than that obtained using the DMI file.

Firms were induced to cooperate on a voluntary survey requesting difficult and confidential financial information. Substantially greater resources were required to obtain an interview than is normally required for a consumer survey. Only experienced and "natural" interviewers were able to achieve adequate yield rates. Substantial amounts of time were required to obtain interviews. The time required to complete an interview was dominated by the time spent to establish contact, to gain cooperation, and to resume contact following a breakoff. The total time spent for an interview was more than three times the average administration time for the questionnaire.

Despite these difficulties, an acceptable overall response rate (nearly 70 percent) was obtained for the survey, which is comparable to those obtained for high quality business and consumer financial surveys. For completed interviews, item nonresponse does not appear to be a problem. Common knowledge questions had very low rates of missing data. Even for dollar amounts, missing data rates were low. However, the use of worksheets or records was lower than hoped. Reported dollar amounts were frequently estimated. At this time we cannot assess data quality. Future work will investigate data consistency, the extent of use of estimates, and the accuracy of reported data.

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Table 1

Sample Allocation Across Domains Defined by Census  
Region, Metropolitan Status, and Firm Size

Census Region	Metropolitan Status	Firm Size <sup>1</sup>	DMI Count	Sample Size
Northeast	Urban	Small	926,956	400
		Medium	20,911	51
		Large	19,747	56
North Central	Urban	Small	854,960	400
		Medium	19,332	47
		Large	17,215	48
South	Urban	Small	1,104,141	400
		Medium	23,700	58
		Large	19,921	56
West	Urban	Small	913,040	400
		Medium	18,037	44
		Large	14,212	40
Northeast	Rural	Small	167,650	400
		Medium	2,732	32
		Large	2,441	35
North Central	Rural	Small	378,395	400
		Medium	5,352	63
		Large	4,112	59
South	Rural	Small	442,133	400
		Medium	6,697	78
		Large	5,793	83
West	Rural	Small	216,681	400
		Medium	2,346	27
		Large	1,568	23

1. Small=1-49 employees, medium=50-99 employees, large=100 or more employees.

**Exhibit 1**

**Structure of the NSSBF Questionnaire**

- I. Characteristics of the Firm
  - A. Screening Information
  - B. SIC Code
  - C. Organization Type
    - 1. Proprietorships
    - 2. Partnerships
    - 3. Corporations
  - D. Location of Firm
  - E. Reference Period (time period to which data apply)
- II. Sources of Financial Services
  - A. Use of Deposit Services
    - 1. Checking Accounts
    - 2. Savings Accounts
  - B. Use of Credit and Financing
    - 1. Leases
    - 2. Lines of Credit
    - 3. Mortgages
    - 4. Motor Vehicle Loans
    - 5. Equipment Loans
    - 6. Loans from Partners/Stockholders
    - 7. Other Loans
    - 8. Most Recent Loan from an Institution
  - C. Use of Other Financial Services
  - D. Relationships with Financial Institutions
    - 1. Characteristics of Financial Institution
    - 2. Location Used for Noncredit Services
    - 3. Location Used for Credit Services
  - E. Other Financial Institutions
  - F. Previous Relationships with Financial Institutions
  - G. Shopping for Financial Services
  - H. Solicitation by Financial Institutions
  - I. Use of Trade Credit
  - J. SBA Borrowing Experience (SBA sample only)
- III. Income and Expenses
- IV. Balance Sheet
  - A. Assets
  - B. Liabilities and Equity
  - C. Miscellaneous
- V. Closing Remarks (Use of Records)

**Table 2**  
**Screening Results**

<u>Result</u>	<u>DMI</u> <u>sample</u>	<u>SBA</u> <u>sample</u>	<u>Total</u>
<i>Ineligible</i>			
Completed screening, ineligible business	969	19	988
Confirmed, no longer in business	921	41	962
No telephone listing, unable to contact	452	34	486
Other	6	0	6
<i>Subtotal</i>	<i>2,348</i>	<i>94</i>	<i>2,442</i>
<i>Eligible</i>			
Completed screening, eligible business	5,280	562	5,842
Partial screening	79	7	86
Language barrier	15	2	17
Listed telephone number, unable to contact	11	0	11
Refusal	125	3	128
Other	159	7	166
<i>Subtotal</i>	<i>5,669</i>	<i>581</i>	<i>6,250</i>
<i>Total</i>	<i>8,017</i>	<i>675</i>	<i>8,692</i>



**Table 3**

**Response Rates**

	DMI Sample	SBA Sample	Total <sup>1</sup>
1. Total firms	5,547	520	6,067
2. Ineligible firms	357	19	376
3. Eligible firms (1)-(2)	5,190	501	5,691
4. Interviews	3,679	404	4,083
a. All sections complete	3,397	390	3,787
b. All but balance sheet or income statement complete	282	14	296
5. Noninterviews	1,511	97	1,608
6. Response rate $100*(4)/(3)$	70.9%	80.6%	71.7%

1. Because of uncertainty about the eligibility rate, a larger than needed number of firms was screened. The sample for interviewing was then randomly selected from the larger screened sample of eligible firms. Thus, the total number of firms in the final sample is smaller than the number of eligible firms in table 2.

**Table 4**

**Response Rates by Reporting Domains: DMI Sample**

<u>Domain</u>	<u>Percent of Firms Reporting</u>		
	<u>Business Characteristics</u>	<u>Financial Service Use</u>	<u>Balance Sheet Data</u>
<i>Census Region</i>			
Northeast	75	68	62
North Central	79	72	67
South	81	74	68
West	76	69	65
<i>Metropolitan Status</i>			
Urban	74	67	62
Rural	82	75	70
<i>Firm Size</i>			
1-49 employees	78	71	66
50-99 employees	80	74	68
100-499 employees	77	71	64
<i>Industry</i>			
Mining, Manufacturing	82	75	70
Construction	79	72	67
Transportation, Communication, Public Utilities	77	68	61
Wholesale Trade	80	75	68
Retail Trade	76	69	64
Insurance, Real Estate	80	73	69
Services	76	69	64
<i>All Firms</i>	78	71	66

Table 5

Use of Worksheets and Records by Respondents

Domain	Percent Preparing Worksheets	Percent Using Records For		
		Financial Services Inventory	Income Statement Questions	Balance Sheet Questions
<i>Organization Form</i>				
Proprietorships	17	27	40	30
Partnerships	17	33	47	43
S Corporations	20	38	56	57
Corporations	24	39	58	59
<i>Firm Size</i>				
1-4 employees	15	26	41	34
5-9 employees	22	34	51	49
10-49 employees	24	42	56	57
50-99 employees	29	46	66	66
100-499 employees	27	51	71	72
<i>Industry</i>				
Mining, Manufacturing	30	47	64	64
Construction	18	31	48	41
Transportation, Communi- cation, Public Utilities	16	42	58	53
Wholesale Trade	19	35	52	50
Retail Trade	18	31	48	44
Insurance, Real Estate	19	37	48	46
Services	21	31	45	42
<i>All Firms</i>	20	34	50	47

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