Statistical Policy
Working Paper 12

The Role of Telephone Data Collection in Federal Statistics

Prepared by
Subcommittee on the Role of Telephone,
Mail and Personal Interviews in Federal Statistics
Federal Committee on Statistical Methodology

Statistical Policy Office
Office of Information and Regulatory Affairs
Office of Management and Budget

November 1984

MEMBERS OF THE FEDERAL COMMITTEE ON STATISTICAL METHODOLOGY
(November 1984)

Maria Elena Gonzalez (Chair) Charles D. Jones Office of Information and Bureau of the Census Regulatory Affairs (OMB) (Commerce) Barbara A. Bailar Daniel Kasprzyk Bureau of the Census Bureau of the Census (Commerce) (Commerce) Norman D. Beller William E. Kibler National Center for Education Statistical Reporting Statistics (Education) Services (Agriculture Yvonne M. Bishop David A. Pierce Energy information Federal Reserve Board Administration (Energy) Edwin J. Coleman Thomas Plewes Bureau of Economic Analysis Bureau of Labor (Commerce) Statistics (Labor) John E. Cremeans Fritz Scheuren Bureau of Industrial Economics Internal Revenue Service (Commerce) (Treasury) Zahava D. Doering Monroe G. Sirken Defense Manpower Data Center National Center for (Defense) Health Statistics (Health and Human Services) Daniel H. Garnick Thomas G. Staples Bureau of Economic Analysis Social Security (Commerce) Administration Robert D. Tortora Statistical Reporting Service (Agriculture) OFFICE OF INFORMATION AND REGULATORY AFFAIRS Douglas H. Ginsberg, Administrator Robert P. Bedell, Deputy Administrator Dorothy M. Tella, Chief Statistician Maria E. Gonzalez, Chairperson Federal Committee on Statistical Methodology PREFACE The Federal Committee on Statistical Methodology was organized by OMB in 1975 to identify and investigate

methodological problems that affect the quality of federal statistical data. Members of the committee, selected by OMB on the basis of their recognized expertise, serve as individuals rather than as agency represen- tatives. The committee carries out its work through,subcommittees organized to study selected issues and open to any federal employee interested in participating. Working papers are prepared by the subcommittee members and do not necessarily represent the views of the Office of Management and Budget. The Subcommittee on the Role of Telephone, Mail, and Personal Data Collection in Federal Statistics was formed to review the available methods of data collection. At an early meeting the Subcommittee decided that its primary focus would be the role of telephone data collection in Federal statistics. This working paper discusses data collection methods in federal statistical surveys, gives illustrative uses of telephone interviewing, and describes research and development issues relating to telephone data collection. The report is intended primarily to be useful to Federal agencies in their data collection efforts. Seminars will be organized to discuss the report with interested agency personnel. The Subcommittee was chaired by Robert D. Tortora, Statistical Reporting Service, Department of Agriculture. i Subcommittee on "the Role of the telephone, Mail and Personal interview in Federal Statistics" Robert D. Tortora, Chair Statistical Reporting Service (Agriculture) Lynda T. Carlson Jesse Pollock Energy Information Bureau of the Census Administration (Energy) (Commerce) Evan H. Davey D. Dean Prochaska Bureau of the Census (Commerce) Bureau of Census (Commerce) Maria E. GonzAlez (ex officio) Leslie J. Silverman Office of Information and National Center for Regulatory Affairs (OMB) Education Statistics (Education) Carol C. House Owen T. Thornberry, Jr. Statistical Reporting Service National Center for Health (Agriculture) Statistics (Health & Human Services) Stanley K. Kulpinski William L. Nicholls, II Bureau of Labor Statistics Bureau of the Census (Labor) (Commerce) ii ACKNOWLEDGEMENTS This report represents the collective efforts of the Subcommittee on the Role of Telephone, Mail and Personal Interviews in Federal Statistics. Although all members of the Subcommittee reviewed and commented on the entire reports, individual members were responsible for initial drafts of various chapters. The names of the main authors of the respective chapters appear below. Chapter Authors I William Nicholls, Robert Tortora II Carol House, Robert Tortora III Owen Thornberry, Leslie Silverman,Stanley Kulpinski IV Evan Davey, Lynda Carlson Carol House, Jesse Pollock, Dean Prochaska, Marvin Scherr, Owen Thornberry V Robert Tortora, Carol House Bibliography Carol House Many individuals contributed to this report. The work was initially guided by Robert Fuchsberg of the National Center for Health Statistics. Marvin Scherr of the Social Security Administration participated actively in the initial development of this subcommittee. Maria Gonzalez worked with the subcommittee throughout the development of the report. Charles Jones, Monroe Sirken and Zahava Doering, members of the Federal Committee on Statistical Methodology: supplied comments on the complete report. We are especially appreciative of the review and editing of the whole report done by Carol House. TABLE OF CONTENTS v Chapter I SUMMARY, CONCLUSIONS AND RECOMMENDATIONS GENERAL SUMMARY This report reviews the current and prospective status of telephone interviewing in Federal statistical surveys. In broad summary, it concludes that: Federal statistical data collection makes only limited use of the telephone interview, and that use is largely

in combination with other methods, such as the mailed questionnaire and the personal interviews The telephone is not used extensively as the primary mode of data collection by any Federal agency. When employed as the sole data collection method, it is most commonly 1 used in: one-time or occasional surveys; those with smaller than average sample sizes and reporting burden for respondents; and surveys which are contracted out. Very few statistical surveys conducted directly by Federal agencies utilize more recently developed telephone survey methods, such as random digit dialing (RDD) and computer- assisted telephone interviewing (CATI), which are widely used in the private sector. The Census Bureau and the Department of Agriculture's Statistical Reporting Service, have made major commitments to the development of such capabilities but have not. yet reached the stage of implementation. These and other Federal agencies such as the National Center for Health Statistics, also have made important contributions to research and development of modern telephone methods and have taken the lead in the statistical theory of dual-frame personal- telephone survey designs. However, these contributions have not been adequately disseminated across the Federal structure. Modern telephone interview methods have the potential of making important contributions to -Federal statistical data collection. These include: (a) reduction of total survey costs, especially where the telephone may replace personal visit interviewing; (b) increasing the timeliness of statistical reporting; (c) improving, quality control of data collection operations; (d) improving response rates; and (e) reducing nonsampling errors. In view of the apparent under-utilization of telephone survey methods relative to their potential benefits, it is recommended that Federal agencies reassess their choices of data collection. methods for statistical surveys. Where a change of data collection methods is indicated, plans to implement these changes should be initiated or accelerated. This reassessment should not be limited solely to considerations of cost and timeliness but also should give full consideration to the consequences of alternative data collection modes for population coverage, respondent cooperation and nonresponse biases, data quality, and maintenance of statistical series. The remainder of this chapter presents conclusions and recommendations in more detail. The conclusions are arranged under three topics paralleling chapters of the report. -1- CONCLUSIONS Data Collection Methods In Federal Statistical Surveys The current use of telephone interviewing in Federal statistical surveys was assessed by analysis of records in the Reports Management System (RMS) of the Office of Management and Budget (OMB) and of additional information provided by three major agencies. (See Chapter III.) The RMS contains a record for every OMB approved data collection from 10 or more respondents by a Federal agency or its contractor. A total of 2,137 records were identified which were active on the reference date of August 22, 1981 and which described a data collection undertaken for the purpose of: general purpose statistics, program evaluation, program planning or management, or research. Only 2 percent of the records listed telephone interviewing as the sole data collection method employed by the survey; and only 9 percent listed telephone interviewing used in association with other methods, such as with self-administered questionnaires (4 percent), personal interviews (2 percent) or both (3 percent). The most common method of Federal statistical data collection is by self administered questionnaire (96 percent of these are "mailed" questionnaires), reported as the only method used in 69 percent of the records. The second most common single method is the personal interview, reported as the only method in 9 percent of the records. In total, about 19 percent of the surveys use personal interviews alone or in combination with other methods. While there is considerable variation among Federal Departments in the choice of data collection methods, none make extensive use of the telephone relative to other methods. As single methods of data collection, the telephone interview and personal interview are used disproportionately with the individual or household respondent. The telephone in combination with the mail is most likely to be used in surveys of business or industry or of farms.' While about three-fourths of survey records listed a Federal agency as the data collection agent, two-thirds of surveys using telephone methods exclusively or in combination with personal interviewing were contracted out. This may reflect the fact that government agencies in 1981 had limited telephone data collection capabilities. The telephone interview, the personal interview, and combinations involving the personal interview were most common in one-time surveys, whereas the mail and mail-telephone combinations were used disproportionately often in periodic- data collection efforts. This suggests that the telephone approach has not been built into scheduled ongoing data collection for most Federal agencies other than to follow-up mail nonrespondents. -2- A second analysis was performed on 113 surveys for which the Departments of Agriculture, Commerce, and Health and Human Services provided supplemental information. These additional results were obtained: Virtually all surveys using mail questionnaires

during the initial wave of data collection use the telephone for non- response followup. The samples for personal interview surveys come primarily from a probability area frame. Surveys using mail questionnaires are based on list frames, as were 50 percent of the surveys conducted primarily by telephone. Only 25 percent of these telephone surveys used random digit dialing. Personal interview surveys are larger. They are used to contact more respondents, obtain more responses, and impose more response hours than other types of survey. Illustrative Use Of Telephone Interviewing The telephone interview plays a variety of roles in Federal data collection. The following is a listing of primary uses illustrated by the case studies in Chapter IV. Nonresponse follow-up to mailed questionnaire. This is the most common way in which telephone interviews are currently employed in Federal data collection. Telephone interviews are used to obtain data from sample units not, replying to mailed forms to increase the response rate or to estimate nonresponse biases. Among Federal Surveys using mailed questionnaire, only about one in ten reported, telephone usage in their OMB clearance forms. However, additional information from three agencies suggest very extensive use. Case studies: the Census of Agriculture; Hog and Cattle inventory Surveys; Advance Retail Trade Survey. Subsequent contacts after an initial contact in person. This method uses a personal interview to establish initial contacts (especially with households) and to obtain telephone numbers. Succeeding interviews with additional household members or for later waves of data collection are completed by telephone for households with telephones and by personal interview for those without. For large surveys, this method substantially reduces data collection costs compared with exclusive reliance on personal interviewing. Case studies: the Current Population Survey; the Quarterly Household Survey. Initial contact from a list sample. In this data collection procedure, lists of specialized populations are the source of samples contacted by telephone. The procedures are efficient when good lists are obtained. Case studies: Nonresidential Buildings Energy Consumption Survey; Household Transportation Survey; Long- Term Care Survey; Mobile Home Placement Survey. Initial contact using random digit dialing (RDD). In this method, households are sampled directly through the population of telephone numbers, thus eliminating the high costs of sampling, travel, and interviewer time for personal interviewing. Random digit dialing circumvents the well known limitations of telephone directory sampling, especially the omission of unlisted numbers. Case studies: Survey of Consumer Attitudes; Health Interview Survey Random Digit Dialing Study. -3- Research and Development Issues

Use of the telephone interview for Federal data collection raises a broad set of issues ranging from population coverage and data quality to relative survey costs and the timeliness of data collection and processing. While definitive generalizations applicable across the full range of potential uses of telephone interviewing are rarely available, accumulating evidence continues to suggest the appropriateness of telephone interviewing for many types of Federal data collection. A brief summary of research evidence on telephone interviewing follows, but it should be recognized that in most cases the answer depends on the individual survey application. A summary of research findings by others cannot substitute for adequate pilot testing for individual surveys. Costs. The development of cost models for telephone surveys is in its early stages. More accurate cost data need to be collected. Effects involving the total survey design such as administrative structure, nonsampling errors, expected response rates, economies of scale, and robustness of cost data need to be included in the models. Overhead cost, in particular, are changing with increased use of centralized telephone facilities and the introduction of CATI. Response Rates. Achieving adequate response rates for telephone surveys is a major concern of federal agencies. They vary considerably between different organizations and different surveys in the same organizations. Even the methods of computing response rates differ. Organizations should publish the specific formula they use. Research should continue to identify variables that can predict response in a variety of populations. Coverage. Certain populations are more easily reached by telephone than others. Recent studies characterizing telephone households make it easier to identify appropriate ones ahead of time. The development of random digit dialing (RDD) and dual frame methodologies have greatly reduced coverage problems. However, more research is needed especially in the area of rare or specialized populations. Interviewer Medium Bias. One should not expect to find massive differences between data collected via telephone and personal interviews in equally well designed surveys. The importance of the differences that may appear will depend on the subject matter of the survey and the level of accuracy needed. Careful pilot testing is advisable before changing collection methods on a continuing data series. Computer-Assisted Telephone Interviewing (CATI). CATI, along with RDD, represent the major. thrusts in telephone interviewing. It has the potential to greatly enhance the quality of telephone data collection. However, CATI's limitations and

greatest strengths are derived from the same source-control of the data collection procedures. Several methodological studies are now being conducted by the Census Bureau and the Statistical Reporting Service to measure the impact on the organizations and the data they collect. CATI may be most advantageous when used for large repetitive surveys. However, experience in the private sector suggests many appropriate situations. -4- Dual Frames. Dual frame methodology minimizes coverage problems while maintaining design efficiency. The addition of several modes of interviewing, most notably random digit dialing, in combination with dual frames has allowed telephone interviewing to be used in innovative new designs. Current researchers are exploring the problems of nonsampling errors and optimum allocation between frames. RECOMMENDATIONS Federal agencies should reassess. their choices of data collection methods for statistical surveys in view of recent advances in telephone survey methodology and the varying roles telephone interviews may play in reducing survey costs and increasing the timeliness of statistical reporting. - In agencies where this reassessment process has begun it should be accelerated to ensure that, the most cost- efficient and effective data collection methods are adopted within time frames permitting the maintenance of statistical series. - In agencies where such a reassessment has not begun, it should become a high priority task incorporated into formal planning processes. This reassessment should not be based solely on cost considerations and timeliness but also should give full consideration to the consequences of alternative data collection methods for population. coverage, respondent cooperation and nonresponse biases, interviewer contributions to variance, and other factors affecting data quality and total survey error. This report and research studies now in progress at several agencies should provide guidance in making this reassessment. Where a change of data collection is indicated for continuing statistical series appropriate phase-in procedures should be adopted to ensure the continuity of estimates or to permit the appropriate splicing of estimates across the transition. Typically this requires conducting the survey by both methods for an appropriate period. Agencies controlling and approving budgets for statistical surveys should recognize that changes of data collection methods to accomplish cost savings generally will require a temporary budgetary increase during the transition phase. Similarly adoption of advanced technologies such as computer-assisted telephone interviewing, will generally require initial investments in hardware, software, and training to be-amortized,over long periods. These agencies should also recognize, that changes in data collection modes which are designed to upgrade data quality, timelinesee, and survey efficiency will require commensurate additional funding to accomplish these objectives. Appropriate organizational structures should be established to - permit a sharing of information across Federal agencies engaged in reassessment of their data for statistical surveys thereby reducing the number of staff collection methods members required of each agency for this process. This organizational arrangement should permit more frequent interchanges of information than is possible-through the annual meetings of professional associations. -5- Chapter II INTRODUCTION BACKGROUND: The Subcommittee on the Role of Telephone, Mail and Personal Interviews was established by the Federal Committee on Statistical Methodology in January 1981. The Committee assigned the Subcommittee with reviewing alternative data collection methodologies in the federal government. The Subcommittee determined that the scope of the assignment was beyond the magnitude of any single group, and focused on the use of the telephone in Federal data collection. This report provides an overview of the use of telephone as a primary and auxiliary mode of data collection and discusses factors which determine if telephone interviewing is appropriate for a federal statistical organization. Because the uses of large scale telephone interviewing is a new concept within the federal government, there is particular emphasis on the variations of use and the initial work that must be undertaken prior to implementing large scale data collections within any agency. AUDIENCE The report is geared to several types of users within the federal government. It is primarily aimed at the statistical community to provide an overview of the uses of the telephone in a wide range of data collection activities. For agency policymakers, it is designed to indicate the multiplicity of issues involved in considering the use of the telephone as a collection mechanism. The report implicitly describes the complexity of these issues and attempts to assist with some preliminary cost guidelines. Individual project managers will find assistance in implementing new surveys or changes to existing ones by reviewing case studies that examine similar populations or problems. Although the report is geared specifically to federal data collection agencies, it should also be of interest to a broad range of data collection groups. ORGANIZATION OF THE REPORT The report is composed of three additional chapters and an annotated bibliography Chapter III is an assessment of the frequency and variation of use of the telephone in federal surveys. This information

is obtained from a review of 2,137 surveys where the use of the telephone was indicated on the OMB Standard Form-83 (SF-83). The chapter then concentrates on the statistical data collection experiences of three departments-Health and Human Services Commerce and Agriculture. Chapter IV presents specific case studies of federal surveys that use the telephone, emphasizing the four major use areas: nonresponse followup, subsequent contacts after an initial contact, initial contact from a list sample, and initial Contact using random digit dialing. Chapter V concentrates on the major research and development work underway in the statistical community with respect to: costs; response rates; coverage; interview medium bias; interviewer monitoring, training and evaluation; computer assisted telephone interview; and dual frame surveys. -6- Chapter III DATA COLLECTION METHODS IN FEDERAL STATISTICAL SURVEYS INTRODUCTION This chapter assesses the use of different data collection methods by Federal agencies in 1981 and 1982. The assessment includes collection methods by sponsoring agency, type of respondent, collection agency, frequency of data collection, and several measures of respondent burden. The review finds that while there is some use of the telephone interview, that use is limited and is largely in combination with other methods. The telephone is not used extensively as the primary mode of data collection by any Federal agency in combination with a mail questionnaire, the telephone is used. to collect information from nonrespondents or to encourage the return of the questionnaire. The telephone in combination with the personal interview is most commonly used in one-time surveys of individuals with relatively large sample sizes. SOURCES OF DATA The descriptive information in this chapter is based on the Reports Management System (RMS) maintained by the Office of Management and Budget (OMB), and on additional information provided by three major agencies. The RMS is a computer data file constructed from the OMB Standard Form 83. OMB requires every agency to submit this form for approval whenever the agency or its contractor collect information from 10 or more respondents. If OMB approves the request, they enter information from the SF-83 into the Reports Management System and that record remains active until the OMB assigned expiration date. This analysis examines records active on August 22, 1981. The reported purpose of the data collection (on the SF-93) was used to identify statistical surveys within this larger set. The Subcommittee decided that two of the six categories of purpose- application for benefits, and regulatory or compliance-were out-of- scope for this analysis 1/. Records in any of the remaining four categories-program evaluation, general purpose statistics, program planning or management, and research-were included. The 2,137 records meeting this criterion.(40 percent of the total file) are called "survey records" in the text and tables which follow. The three agencies with the largest number of data collections-the Departments of Agriculture, Commerce, and Health and Human Services-provided the Subcommittee with more detail about 113 surveys with a telephone component. Additional analysis was performed on this subset, and it is presented after the results from the full set of survey records. _____ 1/ Since-multiple purposes can be indicated, the excluded categories can appear in combination with the in-scope categories. Entries with both in-scope and out-of-scope purposes were retained and may include records of marginal relevance. -7- Table 1 provides a distribution of the survey records by data collection method as coded on the SF-83. 1/ Two-thirds gave the self-administered questionnaire 2/ as the only method of data collection. The personal interview and the telephone interview are reported as the sole method of data collection for ten percent and, two percent respectively. About one-seventh of the records are coded as involving multiple data collection methods. These include the telephone in combination with the self-administered questionnaire (four percent), the personal interview (two percent), and both (three percent). Thus a total of about 11 percent involve the telephone interview. Table 1: Reported data collection method of active OMB approved surveys, August 22, 1981. Number Percent Data Collection Method 1,470 68.8 Self-administered only 46 2.2 Telephone interview only 201 9.4 Personal interview only 90 4.2 Personal interview and self- administered 88 4.1 Telephone and self-administered 36 1.7 Telephone and personal interview 62 2.9 Personal interview, self-administered and telephone 144 6.7 All other* 2,137 100.0 Total * Includes III records with data collection method not given. LIMITATIONS OF DATA Some observations are appropriate to interpret the findings presented above and in the section which follows: The specific content of the SF-93 changed several times in the several years preceding the base year used in this study. The file analyzed contained entries from three different forms. Consequently, there are missing data on some variables (Federal cost for example) and undoubtedly inconsistencies on others. The SF-83 has changed since 1981 and the present version does not identify "Data Collection Method". _____ 1/ Because it was not possible to tabulate directly from the OMB file, selected data were abstracted from the appropriate entries,

coded, and a data file created. The tabulations in this report were generated from that file. The Subcommittee is indebted to the Computer Systems and Programming Branch, Division of Health Interview Statistics, NCHS, for the file creation and data processing. 2/ The category "self-administered" includes 1,415 records coded as "mail self-administered" and 55 records coded as "other self-administered." -8- The choice of telephone interview as one of the explicit data collection methods which could be checked was not available on the SF-83 until September 1980. Prior to that time the category "other" had to be checked and the words "telephone interview" written in. The effect of these omissions, if any, is to under represent the use of the telephone method. How extensively the telephone is used for data collection varies greatly. For example, the telephone may represent the only method of data collection as in random digit dialed (RDD) surveys or it maybe used only to obtain data from those not responding to a mail questionnaire. Further, the telephone may be used for purposes other - than actual data collection, such as to contact a respondent to arrange for a personal interview, to verify or supplement information collected by mail or personal interview, or to encourage the respondent to return a mail questionnaire. It was not possible in the analysis based on the RMS to determine how frequently such auxiliary uses of the telephone are included in reported uses of the telephone as a data collection method. Many surveys listed in the RTAS involve several stages of data collection; e.g., longitudinal, pretest and survey, core questionnaire and supplements. Sometimes one survey record appears in the RMS covering all stages and other times a separate record appears for each stage. Thus, each entry. does not necessarily represent a distinct data collection effort. There is considerable variation in the characteristics of the surveys, which makes generalizations as to a "typical" Federal statistical survey difficult. For example, number of respondents can be more than one hundred thousand or as little as ten; estimated cost can be in the millions of dollars or only a few thousand; the number of responses per respondent varies from 1 to 52; and so on. FINDINGS Full Survey Record File Cross tabulations of data collection method by selected variables are presented in Tables 2-6. 1/ Table 2 provides a distribution by collection method for selected sponsoring Departments or agencies. The Departments with the largest numbers of survey records are Health and Human Services (326), Commerce (316) Agriculture (257), Energy (132), Defense (111), (106), and Housing and Urban Development (105). _____ 1/ Tables appear at the end of the chapter. -9- While there is considerable variation among Departments, the self- administered questionnaire is the most common approach for each. The Departments with the largest numbers of personal interview surveys are HHS (48) and Agriculture (31). None of the Departments make extensive use of the telephone relative to other methods. The telephone in combination with the mail or personal interview is used in 33 percent of the surveys of the Department of Agriculture. Table 3 provides data on type of respondent. One half of the entries involve data collection from business or industry and about one-fifth each from individuals (or households) and State or local government. As single methods of data collection, the personal interview and the telephone interview are used very frequently with the individual or household respondent. The telephone in combination with the mail is most likely to be used in surveys of business, industry or farms; in combination with the personal interview for individuals or households. A distribution by collection agent-either the Federal Government or a contractor is given in Table 4. Three fourths of the records list a Federal agency as the data collection agent. Those involving the self-administered approach, either as a single method or in combination with the personal interview or telephone, were mostly conducted by a Federal agency. By contrast, almost two-thirds each of the telephone and the telephone-personal interview combination were contracted out to a non-federal agency. This may reflect the fact that government agencies currently have limited telephone data collection capabilities. Information from other sources suggests that in combination with the mail, the most common use of the telephone is either to encourage nonrespondents to return mail questionnaires or to provide the information over the telephone. This use generally requires a smaller staff and a less sophisticated system than telephone data collection alone or in combination with the personal interview. Thus, the high proportion of telephone-mail surveys which are conducted by Federal agencies is not surprising. Table 5 provides data on frequency of data collection. About one half the surveys were infrequent (either single or occasional) and one-half periodic (weekly-biennial). The telephone interview, the personal interview and combinations involving the personal interview were most common with one-time surveys whereas the mail and the mail-telephone combination were used disproportionately in periodic data collection efforts. These data suggest that the telephone approach has not been built into scheduled ongoing data collection for most Federal agencies other than to follow-up mail nonrespondents. Estimated median values for selected

measures of sample size and respondent reporting burden are provided in Table 6. These are approximate values and for each measure there is a wide range of values within each collection method. Across all methods the median number of respondents and total responses (number of respondents X number of responses per respondent) are around 550 and 19400, respectively. The self-administered survey, the telephone survey, and the two in combination have the lowest median values on these measures. The telephone and the telephone self- administered combination also have lower than average median values for two respondent burden measures-total hours reporting burden and minutes per response. -10- Costs are not compared here. The RMS file contained values for "Federal cost" in only one-third of the records. The cost relationships in the other two-thirds may be considerably different. Data which are available does not represent pure estimates of cost by data collection method because many factors with the potential to affect cost substantially are unknown. There is no reason to assume consistency among agencies in deriving estimates of Federal cost. Selected Surveys from the Department of Agriculture, Commerce, and Health and Human Services As a result of the limitations discussed earlier in this chapter the Subcommittee moved to obtain additional data. f rom the three agencies with the most reported surveys in the RMS-the Departments of Health and Human Services, Commerce and Agriculture. Together they accounted for 899 or 42 percent of the 2,137 active surveys (Table 2). The remainder of this chapter describes the findings from 113 surveys for which the three Departments provided more information. These 113 surveys were taken primarily from the original RMS file, but some additional surveys were included that were active on August 22, 1981, but were missing from the RMS. All of these surveys used the telephone in some way for data collection. These surveys included "self-administered" surveys that were mailed. Therefore the term "self-administered" will be replaced in this discussion by the more common term, "mail." Table 7 cross-classifies the "primary means" of data collection by the mix of data collection methods used in the initial wave of the survey. Twenty surveys used the telephone as the primary mode of data collection. In most of these it was the exclusive mode. For 3 of the 17 personal interview surveys, agencies permitted a telephone substitute when convenient or cost effective. All but 2 of the 76 mail or mail/telephone/personal interview surveys used the telephone for nonresponse followup on their initial waves of data collection. Overall, 16 of the 113 surveys do not use the telephone to collect data. Table 8 provides the frequency of respondent contacts. It shows telephone surveys are distinctive in having only one contact with the respondent. In the other three categories, 80 percent or more of the surveys have more than one contact. Table 9 shows the frequency or periodicity of the survey. It indicates that telephone surveys tend to be one-time surveys and that no other category of survey shares that characteristic to the same extent. Table 10 describes the sources of the samples by primary mode of data collection. Area probability samples are the domain of personal interview surveys. The mail and mail/telephone/personal interview surveys use list samples. Random digit dialing is the source of the sample for only 25 percent of the telephone surveys. Tables 11, 12, and 13 provide three measures of the sizes of the surveys: number of respondents, number of responses, and number of respondent hours. They describe the characteristics of surveys categorized by the primary means of data collection. Personal interview surveys, by far, have the largest (median) number of respondents, responses and response hours. The medians for personal interview surveys are about five times larger than the medians for the next largest data collection type. The mail/telephone/personal interview survey has the second largest medians. The medians are similar for the "telephone" and "mail" surveys. -11- Chapter IV ILLUSTRATIVE USES OF TELEPHONE INTERVIEWING.- INTRODUCTION This chapter provides examples of major ways Federal agencies use the telephone to collect data. They are: - Nonresponse followup - Subsequent contacts after an initial contact in person - Initial contact from a list sample - Initial contact using random digit dialing. The case studies show how these data gathering techniques are used in, Federal surveys. They also illustrate unique configurations of survey populations, various problems, and attempts to resolve those problems. The Subcommittee hopes the information will encourage prospective users to consider thoughtfully the advantages, and: disadvantages of telephone technology, and will provide current users with new insights. The telephone facilitates additional tasks, not discussed below, which make up a smaller part of a given data collection. It is, however, the use of the telephone that makes many of these tasks possible and minimizes the effort needed to complete them. They include: - Scheduling appointments for personal interview - Prompting respondents to return mail questionnaires; answering inquires about the questions on the form - Classifying or completing information - Reinterviewing for quality control. NONRESPONSE FOLLOW-UP Case Study I-The Census of

Agriculture Purpose and Description. The Census of Agriculture is taken every five years and provides economic and some demographic data for the agriculture industry at the county, state, and national level. The first agriculture census was taken in 1840. The 1982 Census of Agriculture was the 22nd nationwide agriculture census conducted in the United States. Prior to 1969, the Census of Agriculture was based on a nationwide canvas of rural areas and personal interview by enumerators. The censuses since then have used a mailout/mailback self-enumeration procedure to collect data, with a portion of the nonrespondents contacted by telephone. -12- Sample Design. The list frame for the 1982 Census of Agriculture was composed of a list of likely farm operator names assembled from the 1978 census farm list and from records obtained from the Internal Revenue Service, the U.S. Department of Agriculture, other government agencies and agriculture related organizations. The major objective in developing this list was to provide as complete coverage as possible for all agriculture operations. The total number of records from all sources was about 19.0 million. A record linkage and screening operation to remove duplicate and nonfarm names reduced the final list to approximately 3.6 million names and addresses. Questionnaires were mailed to all addresses on this final list. Addresses not responding to the mail questionnaires were scheduled for telephone follow up, based on the size of their operations. Due to the significance of the larger farms, all of those nonrespondents were followed up to provide reliable data, specifically at the county level. Smaller operation nonrespondents were followed up on a sample basis. Field Methods. Mail Follow-up. The initial mailing of report forms was made in late December 1982; nonrespondents were sent a series of five follow up requests. In late February 1993, the first follow-up letter was sent to all nonrespondents reminding them of the February 15 due date. The other reminders, sent to nonrespondents, followed on a flow basis at 3- to 4- week intervals starting in March and continuing into July. Telephone Follow-up. Operators whose annual sales were estimated to be $100,000 or more were scheduled for follow-up if the returned forms were incomplete or inconsistent, or if they failed to respond to any of the mailings. This follow-up was done primarily by telephone interviewing. The telephone follow-up operation was centrally operated from the Census Bureaus processing office in Jeffersonville, Indiana. The telephone unit received approximately 140,000 cases to call; of these, about 100,000 or 71 percent were nonrespondents with large farm operations. Telephone interviews were conducted with the farm operators or with a knowledgeable household member if the operator was not available. The length of the interviews varied from a few minutes to as much as an hour, depending upon the type and size of operation and upon the availability of the information. The average length of interview was approximately 30 minutes. If there was no answer on the first attempt to call a number, three more attempts were made. After four attempts the telephone number was verified to assure that it was the correct number. Information about farm operators who could not be contacted by telephone was obtained by calling local county agriculture offices. The final number of nonrespondents after all mail and telephone follow-ups was approximately 0.5 million or 15 percent of the total list. Nonrespondents representing smaller farms were not followed up due to excessive cost and are represented in the census totals by a statistical adjustment based upon estimates from a sample of nonrespondents. An additional part of the telephone follow-up operation for the 1992 Agriculture Census was implemented as a Computer Assisted Telephone Interviewing (CATI) test. A sample of about 9,000 large nonrespondent records was selected for completion using CATI at the Washington, D.C. office. An identical control sample in the central processing operation was flagged for comparison and analysis. The test is currently completed but comparisons to the. regular follow-up group and other analyses have not been completed. -13- Consequences of the Use of the Telephone. During the 1982 Census of Agriculture, the telephone unit in the central processing office handled about 160,000 cases Oncoming and outgoing). The major portion of these calls was to large farm nonrespondents. The telephone follow-up of this group resulted in about 60 percent completed reports directly from respondents, and 40 percent completed from secondary sources. The major benefits of the telephone follow-up were the reduction in data collection costs (estimated to be about one-fourth the cost of a personal visit interview), and the relatively high rate of success in the follow- up effort compared to follow up by mail only. Disadvantages associated with using the telephone in the follow-up included the inability to reach households with unlisted telephone numbers and the refusal of some individuals or organizations to be interviewed by telephone which resulted in use of less reliable secondary source information. Major Problem Areas, Issues. No conclusive data regarding the reasons for nonresponse or the characteristics of nonrespondents to the census now exist. However, a small study conducted during the follow-up of the 1982 Farm and Ranch Identification Survey has suggested some hypotheses. These results indicated that

one major reason for the 15 percent nonresponse rate in that survey was that some people did not view themselves as farm operators. This occurred primarily among smaller, part-time operators who often had nonfarm jobs. Another factor affecting participation in the survey was privacy, i.e., some individuals considered their operation to be none of the government's business. Characteristics of nonrespondents and factors associated with motivation to respond need to be investigated more comprehensively to guide the development of improved follow-up procedures in future agriculture censuses. Additional issues requiring examination include the use of CATI for the census follow-up, the optimum cutoff level for telephone follow-up and methods/alternatives for improving the reliability of data for the no contact telephone follow-up cases. Case Study 2-Hog and Cattle inventory Surveys Purpose and Description. The Department of Agriculture (USDA) has published annual estimates of livestock inventories since 1866. Today this information is collected through several series of surveys conducted by the USDA's Statistical Reporting Service (SRS). Although hog and cattle inventory data are collected separately, the survey design and data collection procedures of these two series are similar, and they will be discussed here as a single case study. The major purpose of these two surveys is to collect and publish data on current hog and cattle inventories. These reports are issued twice a year for cattle and four times a year for hogs. Market animal numbers are collected and published by weight groups for use in slaughter forecasts. Data are also collected and published on breeding stock and breeding intentions. Sample Design. SRS implemented a dual frame design for these surveys in the early seventies. An area frame, stratified by land use, is used to estimate for the incompleteness of a list of livestock operators stratified by the size of the livestock operation. A modified panel rotation scheme is followed in each series which allows multiple contacts with a core sample of respondents throughout the year and a systematic rotation of selected respondents to reduce burden. For cost efficiencies,.the design also allows one data collection effort per year with full list sample size for each series, and one additional survey per year for cattle and three additional surveys for hogs with reduced samples. The following give a few of the highlights: -14- A cattle survey with a full list sample and a subsample of the area sample is conducted in winter for state and national estimates, with an approximate national sample size of 47,000. A full area sample and a subsample of larger list strata is recontacted in summer to provide national cattle estimates only. A full dual frame hog survey is conducted each summer in the ten major producing states along with a subsample. in the remaining states to provide national estimates. A dual frame sample is contacted in the winter to provide national and state estimates of hog inventories. A dual frame subsample in ten major hog producing states is recontacted in fall and spring quarters, with approximate national sample size of 20,000. Field Methods. SRS uses a distributed system for data collection in which 44 state statistical offices work in, conjunction with the main office in Washington, D.C. The Washington office designs the specifications for the Survey and questionnaires, controls the computerized edit programs and summary systems, and provides training and direction to the state offices. The field offices are responsible for the actual data collection activities, including the hiring and training of interviewers, survey management, and editing. The data are collected through a variety of modes. For the list samples, there is an initial mailout of questionnaires with telephone follow-up for nonresponse starting in approximately 5 days. Telephoning generally lasts for another 5 to 7 days. Larger operations are frequently contacted in person during the survey period to ensure maximum response in the larger strata. A portion of the telephone inaccessible are also contacted in person. Area frame samples are initially contacted in.person. However, during subsequent survey periods that year, the area sample units (from which phone number and mailing addresses have been obtained on the initial visit) are handled the same as those in the list sample. The cattle and hog inventory questionnaires generally take about 10 minutes to complete. Consequences of the Use of the Telephone. The survey design has been basically unchanged since the early seventies. However, the emphasis in data collection has gradually shifted from mail to telephone returns. For example, in March 1978 the telephone accounted for 56%, mail-29%, and personal interview-16%. Three years later, in December 1981, these percentages had changed: telephone-65%, mail-19%, and personal interviewing-16%. These shifts were caused by reduction in mail response rates, requiring more telephone contacts. The percent of total returns by personal interview remained constant. SRS has traditionally concentrated the majority of its efforts and expertise on data collection by mail and personal interviewing. However, the trends discussed above in the livestock surveys (and in other agriculture surveys not discussed) have made it clear that telephone data collection is an important part of the agency's overall program. Issues related specifically to telephone interviewing such as specialized training and questionnaire wording, are now being addressed more

carefully by agency personnel. An example of this shift in direction is a large research project which began in 1991 to evaluate Computer Assisted Telephone Interviewing (CATI) for these surveys. The system is being used operationally in two states at this time. The cattle inventory survey became -15- the initial test survey for CATI, and the research is geared to measuring data quality improvements that may result from using online edit and consistency checks. Preliminary results from the study indicate that the use of these checks during an interview may help eliminate as much as 75 percent of related response errors. Examination of other issues such as cost, timeliness, and effect on survey management and interviewer training are still being investigated. Case Study 3-Advance Retail Trade Survey Purpose and Description. The Advance Retail Trade Survey data are used in the Advance Report which provides a month before the fun report, information on sales and inventories data for major retail groups such as car dealers, clothing stores and appliance dealers. In January 1951, the Census Bureau began publication of its monthly Retail Trade Survey. Preliminary data were processed and published for the full sample in the second month following the survey month. in order to produce this report sooner, a subsample was selected which could be speedily processed and provide the basis for an advanced report within 10 days of the end of the survey month. Publication of the advanced report began in October 1953. Sample Design For the full Retail Trade Survey a sample of 30,000 establishments is selected from the Standard Statistical Establishment List (SSEL) which has been stratified by Standard industrial classification (sic) code and sales size. The selection is with probability proportional to annual sales. The smaller establishments are randomly assigned to panels which are periodically rotated so that overall about 12,000 establishments are canvassed each month. The Advance Survey uses a fixed subsample of 2,800 of the 30,000 establishments. Field Methods. On or about the 26th of each month, a mail form is sent to each of the 2,800 sampled establishments for that month's sales and inventory data. Mail responses are sent to the Census Bureaus 12 regional offices. All establishments not responding by PO mail within 10 days are contacted by telephone from the regional office. The telephone interviewing is completed over the next 2 days and the raw data are transmitted from each regional office to Washington where it is processed. The advanced report is issued by the 10th of the month. Consequences of the Use of the Telephone. About 25 to 30 percent of cases respond by mail before cut-off on the 5th; 65 to 70 percent are collected by telephone and about 7 percent are nonrespondents. These rates have remained fairly consistent throughout the history of the survey. The extensive use of telephone interviewing within a 2-day period, using 12 regional offices, provides the only practical means of ensuring a high level of response within so short a time frame. it makes it possible to release estimates of reasonable quality within 10 days of the end of each survey month. SUBSEQUENT CONTACTS AFTER AN INITIAL CONTACT IN PERSON Case Study 4-Current Population Survey Purpose and Description. The Current Population Survey (CPS) is a monthly survey consisting of a core series of questions to determine whether individuals aged 14 or older in the households surveyed were employed, unemployed, or out of the labor force during the week before the survey. Additional questions obtain descriptive data such as hours -16- worked, industry and occupation, duration of unemployment, and reasons why people were not in the labor force. In some months, the survey is supplemented by questions on other socioeconomic topics such as income, work experience, fertility, and school enrollment. Sample Design. The CPS sample design is a multistage, stratified sample of the United States population consisting of two independent national samples and three supplementary samples selected to increase the reliability of state and selected substate areas. The multistage plan is roughly equivalent to dividing the entire United States into sampling units, each containing about four housing units, and selecting clustered samples of these units for interview. Currently, about 60,000 occupied housing units clustered with 629 primary sampling units are contacted each month for the CPS. Field Methods. Interviewing is done monthly during the week containing the 19th day of the month. Households in the sample for the first or fifth time are sent advance letters advising the household of the interviewer's forthcoming visit. . All households in sample for the first time and most of those households in sample for the fifth time are contacted in person. once a household has had a personal interview, it may be contacted subsequently by telephone, providing the respondent has agreed to this method of interview. Overall households contacted by telephone represent 65 percent of all interviewed households. About 85 percent of those CPS households eligible to be contacted by phone are interviewed by telephone. The CPS program employs approximately 1,400 interviewers; the average interviewer work load is approximately 50 cases per month. The average interview takes approximately 10 minutes. Consequences of the Use of the Telephone. Preliminary data from the CPS suggest that roughly 95 percent of the civilian noninstitutional population

have telephones available,however, only approximately 87 percent have telephones in their homes. Differences exist with respect to telephone ownership by race and ethnic background. Approximately 88 percent of Whites have telephones in their homes, compared to 80 percent of Blacks and Hispanics. Roughly 80 percent of the unemployed own phones, while 88 percent of the employed and 86 percent of persons,not ' in the labor force own phones. Hence, a labor force survey conducted solely by telephone could produce biased results. Recently as a cost-saving method, the CPS encouraged interviewers to use the telephone as much as possible. Prior to this modification, the overall telephone interview rate was approximately 60 percent or about 82 percent of the households eligible for telephone interviews. These rates have now increased to approximately 65 percent and 85 percent, respectively. As far as is known, this slightly increased use of the telephone has not adversely affected the quality of labor force data. Major Problem Areas, Issues. From data obtained from the CPS, it may be concluded that if all interviewing were conducted by telephone, coverage problems would exist as a result of differences in telephone ownership between racial and ethnic groups, especially between Whites and non-Whites. As these differences are significant with respect to labor force status, particularly for the unemployed, exclusive use of the telephone for this group could have adverse consequences on the quality of data for surveys such as the CPS. Case Study 5--Quarterly Household Survey Purpose and Description. The Quarterly Household Survey (QHS) provides data f or the Survey of Residential Alterations and Repairs (SORAR) which includes dollar expenditures for residential housing alterations, additions, remodeling, repair, major replacements, maintenance, etc. Its primary uses are for input to the GNP accounts, and for the industries involved in home repair to assess their respective positions and to aid in future planning. -17- Data are collected from a sample of households during the first 10 days of each calendar quarter for the previous quarter by Census Bureau field interviewers. Preliminary estimates are issued about 30 days after the end of each calendar quarter. Sample Design. The sample consists of housing units selected in 103 Primary Sampling Units (PSUs) which are a subsample of PSUs used for the Current Population Survey (CPS). As with CPS, clusters of four housing units are selected. About 1,000 newly selected units are added each quarter, and roughly the same number are rotated out. In a particular quarter, about 6,000 respondents are contacted. These fall into two major groups: a. One-to-four unit owner-occupied properties. b. Rental or condominium properties and all properties with five or more units. Units considered as out-of-scope are mobile homes and group quarters such as dormitories, nursing homes, convents and prisons. Field Methods. Each unit selected for QHS remains in the sample for seven consecutive quarters. The first interview is always conducted in person by a Census Bureau interviewer. The interviewer will determine whether the unit is in scope of the survey the property is one-to-four unit owner-occupied. The initial interview also serves as a bound for the reference period for the next interview so that only jobs done during the appropriate time will be included in later reports. Data from the initial interviews are not used for tabulation since the initial interview is not bounded. Studies have shown that respondents often include information about events occurring prior to the stated reference-period (telescoping) in the first report, making the reports very unreliable and they are therefore, not used for tabulation. If the sample unit is rented, a condominium or on a five or more unit property, the interviewer is instructed to obtain a mailing address for the owner or manager of the property. Subsequent data collection for these properties is are done by mail with telephone follow-up from the 12 Census Bureau regional offices. For one-to- four unit owner-occupied properties, at the end of the initial interview, the interviewer obtains a telephone number and the best time to call, so later contacts may be made by telephone if the respondent agrees to do so. About 3,500 of the 6,000 respondents contacted quarterly, fall into the owner-occupied category. About 85 percent of the second quarter and later interviews in this category are done by telephone from the interviewer's home. Consequences of the Use of the Telephone. The use of telephone interviewing for QHS was introduced in two stages. When the survey was first done in 1963 all seven interviews were done by personal visit.- In 1974-1975, half the sample continued with all personal visits but for the other half, telephone was used for the second, third, fifth, and sixth interviews. A comparison of the two half- samples showed no statistically significant difference in the data or in response rates (about 98 percent). However, there was no difference in the field costs, either, since the largest component of the survey costs was the cost incurred in travel from the interviewer's home to the sample units. By continuing to conduct half of the interviews in person, the overall amount of travel was hardly reduced. The use of telephone was expanded to the entire sample in 1976 resulting in a reduction in data collection costs. This shift was generally accepted by the respondents. With further budget cuts in 1991, all interviews after the first were conducted

by -18- telephone. When this was initiated, an additional 15 percent reduction in data collection costs was realized. One possible problem with QHS is the decentralized phone contact which provides no supervisory controls or monitoring of the interview. Costs could be reduced and supervisory control could be improved if centralized Random Digit Dialing (RDD) were used. But RDD presents certain problems. Without the personal contact, it may be difficult to determine whether a unit is in scope of the survey and, if so, whether it is on a one-to-four unit owner- occupied property. If it is a rental, condominium, or five or more unit property, it may be difficult to get a mailing address (or telephone number) of the manager or owner of the property. Also, the initial interview being done in person may establish a rapport with respondents which increases the survey response rate. INITIAL CONTACT FROM A LIST SAMPLE Case Study 6-The Nonresidential Buildings Energy Consumption Survey Purpose and Description. The Nonresidential Buildings Energy Consumption Survey Update (NBECS II) was designed by the Energy Information Administration. The original NBECS was a personal interview survey conducted with building owners or managers in 1979-1980. The survey was designed to get an estimate of the number of nonresidential buildings in the United States as well as information related to energy consumption in the commercial sector. Respondents were asked about the structural and operational characteristics of their buildings, e.g., square footage, uses of the buildings, number of employees, hours of operation, conservation practices, types of energy supplied. At the conclusion of the interview, respondents were asked to sign an authorization form to enable their energy suppliers to release energy consumption and expenditure data for their buildings.. The consumption and expenditure data Were collected from the suppliers through the mail. The NBECS 11 follow-up telephone survey recontacted building owners who reported in the 1979-1980 survey. A sample of buildings constructed after the original sample was drawn (mid-1979) to keep the sample current. The purpose of the update is to describe the current nonresidential building stock, changes in the.buildings' structural and operational characteristics, and patterns in energy consumption and usage. These last data are supplied by utility companies, contingent upon authorization by building occupants. Sample Design. The sampling unit for this survey is the building. Buildings were selected using a multistage area probability sample design supplemented by a list of large buildings' Samples of new construction were drawn separately for each year between 1979-1982 from the F.W. Dodge tapes of new construction and added to the frame to keep it current. This sample is a random sample stratified by ten size classes. Field Methods. A telephone screening was conducted for the new buildings in the sample to determine when the building was/will be completed and to locate a knowledgeable respondent (and their telephone number). Respondents from the original buildings were first contacted by letter and then by telephone to obtain the interview. Following the interview, respondents were sent forms identifying the utilities used and requesting authorization to collect information from them. Finally, the utility companies Will be sent the authorization forms and be asked to provide, consumption and expenditures data for the sample buildings. -19- In a sizeable number of cases, the introductory letters were returned because the buildings have either changed or had been demolished. A telephone screening was conducted to try to obtain the name and telephone number of the current occupants. The same procedures were followed for the newly constructed buildings that were added to the sample. However, respondents from the new buildings were given the original interview by phone (which took about 30 minutes) as opposed to the update interview (which took 15-20 minutes). Consequences of the Use of the Telephone. The overall response rate for the telephone survey was 89 percent which is comparable but slightly lower) to that achieved during the personal interview phase. Although 2nd wave response rates for structural characteristics and operational use did not suffer a decrease from Wave 1, problems have occurred in obtaining the signed authorization forms. For the consumption and expenditures data in the original survey, waivers were signed by approximately 90 percent of the interviewed respondents. Seventy percent of the respondents completed the forms and returned them in the mail following the telephone interview. A substantial amount of field follow-up raised the response rates to 91 percent. For most buildings, the occupants will still be the same ones as in 1979. Thus, using the telephone to update information for this group will be more efficient than personal interviews. However, the use of the telephone makes it much more difficult to find an appropriate respondent when the building occupants have changed. Using the telephone also makes it difficult to find out that a building has been demolished. The consequences of using the telephone on data quality will be determined after the interviewing of the new building sample is completed. Data from the original interviews, conducted in person, can be compared with the same information collected over the phone. Case Study 7--Household Transportation

Survey Purpose and Description. The Household Transportation Survey was designed by the Energy Information Administration provide data on energy consumption for motor vehicle transportation within the residential, sector. The purpose was to provide monthly and annual estimates of fuel consumed and miles driven by individuals. Respondents were characterized by a variety of descriptors such as family income, vehicle size, model year, and geographic location. Sample Design. The sample unit for this survey was the household. Households were selected according to a multistage probability sample and randomly assigned to one of six groups. one group was brought into the sample each month and reported information for 2 consecutive months, was dormant for 4 months, and then reinterviewed for 2 more months. Field Methods. Selected households were first contacted by letter and presented an incentive payment of $5 per vehicle. Background information was obtained by telephone interview. Shortly before the first day of the reporting month, fuel purchase logs and instructions were sent to each household. A telephone call followed the mailing of these materials by -20- Reports Available in the Statistical Policy Working Paper Series 1. Report on Statistics for Allocation of Funds; GPO Stock Number 003-005-00178-6, price $2.40 2. Report on Statistical Disclosure and Disclosure-Avoidance Techniques; GPO Stock Number 003-005-00177-8, price $2.50 3. An Error Profile: Employment as Measured by the-Current Population Survey; GPO Stock Numbr 003-005-00182-4, price $2.75 4. Glossary of Nonsampling Error Terms: An Illustration of a Semantic Problem in Statistics (A limited number of copies are available from OMB) 5. Report on Exact and Statistical Hatching Techniques; GPO StoCk.Number 003-005-00186-7, price $3.50 6. Report on Statistical Uses of Administrative Records; GPO Stock Number 003-005-00185-9, price $5.00 7. An Interagency Review of Time-Series Revision Policies (A limited number of copies are available from OMB) 8. Statistical Interagency Agreements (A limited number of copies are available from OMB) 9. Contracting for Surveys (Available through NTIS Document Sales, PB-83-233-148) 10. Approaches to Developing Questionnaires (Available through NTIS Document Sales, PB-84-105-055) 11. A Review of Industry Coding Systems (Available through NTIS Document Sales, PB-84-135-276) 12. The Role of Telephone Data Collection in Federal Statistics (Available through NTIS Document Sales, PB-85-105-971) Copies of these working papers, as indicated, may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202-783-3238) or from NTIS Document Sales, 5285 Port Royal Road, Springfield, VA 22161 (703-487-4650).