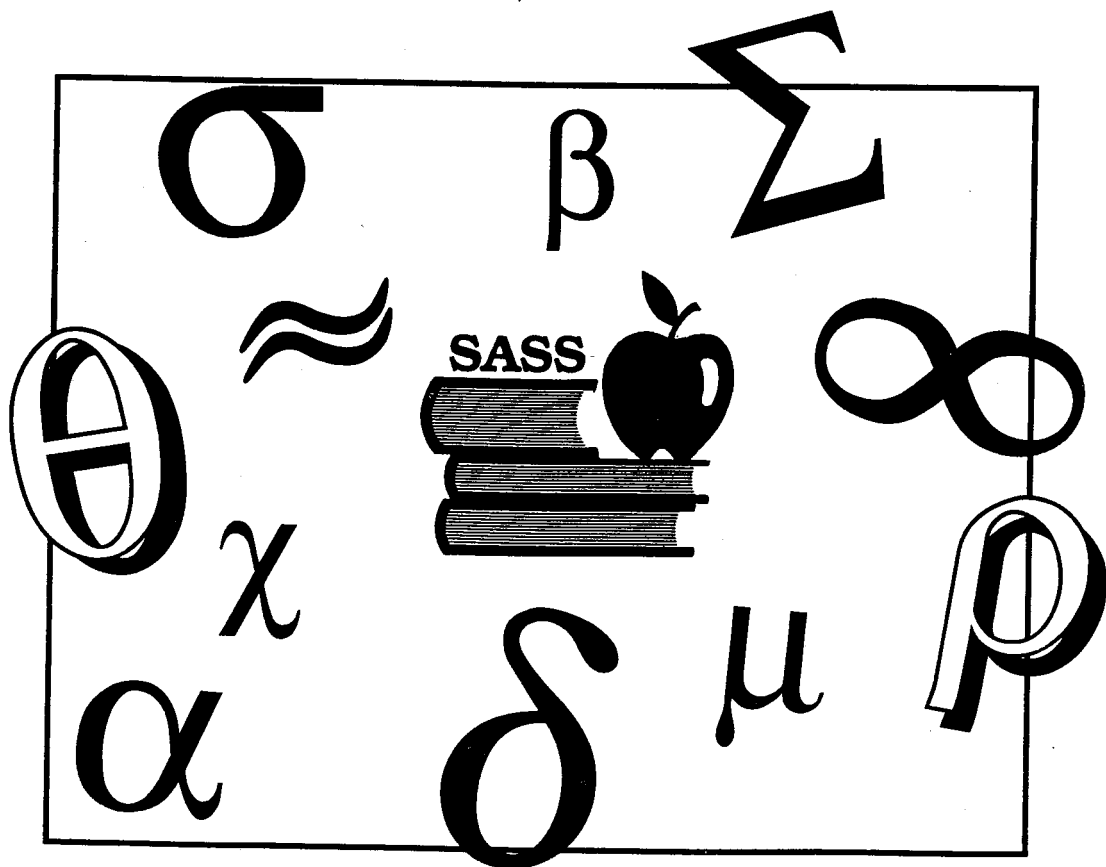


Quality Profile For SASS

Aspects of the Quality of Data in the
Schools and Staffing Surveys (SASS)



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PREFACE

This Quality Profile for the Schools and Staffing Surveys (SASS) presents and summarizes available information about the quality of data from the five surveys that comprise SASS. As background, the report also describes the survey design and procedures for each of the surveys. It was prepared by Synectics for Management Decisions Inc., a contractor to the National Center for Education Statistics, as Task 3 under Contract No. RN-91-0600.01.

The Quality Profile was written by Thomas B. Jabine, a consultant to Synectics. Tables and exhibits were developed by Sue Streett, also a consultant to Synectics. Additional assistance from the Synectics staff was provided by Sameena Salvucci and Steven Fink, all working under the direction of Wray Smith, Research Director.

Several people at the National Center for Education Statistics and the Bureau of the Census contributed to the development of the Quality Profile. Kerry Gruber was the project coordinator for NCES. In addition to reviewing and providing helpful comments on all drafts, she and Daniel Kasprzyk assembled relevant source materials and clarified many technical issues that arose in the preparation of this report. Other NCES staff who provided answers to technical questions and comments on various drafts were Sharon Bobbitt, Steven Kaufman, Carrol Kindel and Mary Rollefson.

This main survey data collection and processing operations for SASS are carried out by the Bureau of the Census under an interagency agreement, according to specifications developed by NCES. Census Bureau staff members who contributed to this report. By providing source materials, answering technical questions and reviewing drafts of sections of the report were La Terri Bynum, Patrick Healy, Cleo Jenkins and Irwin Schreiner.

Peer reviewers for the report were Michael P. Cohen, Statistical Standards and Methods Division, NCES, Mary Rollefson, Data Development Division, NCES, Karen King, Bureau of the Census, Ron Fecso, National Agricultural Statistics Service and Graham Kalton, Westat, Inc. Susan Ahmed, Statistical Standards and Methods Division, NCES, was the adjudicator for the peer review.

We hope to update this Quality Profile periodically. Comments on the format and content of this first version are welcome.

CHAPTER 1

INTRODUCTION AND OVERVIEW

Every operating system produces information that can tell us how to improve it. -- George Box (1993)

1.1 Introduction

The Schools and Staffing Survey (SASS) is a periodic, integrated system of surveys of schools, school districts, school administrators and teachers. SASS is sponsored by the National Center for Education Statistics (NCES) of the U.S. Department of Education. Users of the survey data are educators, researchers, policymakers and others interested in educational issues. The survey data are collected by mail, with telephone followups to nonrespondents.

Purpose and audience The main purpose of this *SASS Quality Profile*, which we expect to update periodically, is to summarize what is known about the quality of data from the five surveys that comprise SASS. As background, we also provide information about the survey design and procedures for each of the surveys: the School Survey, the School Administrator Survey, the Teacher Demand and Shortage Survey, the Teacher Survey and the Teacher Followup Survey.

This report will be of interest to users of SASS data, to persons responsible for various aspects of the design and operation of the five surveys and to anyone interested in the quality of survey data, especially data from mail surveys and surveys related to education. More specifically, the report will provide the basis for a systematic review of past and ongoing research on the quality of SASS data, with a view toward identifying gaps in our knowledge and establishing priorities for future research activities.

Survey rounds We will refer to each repetition of the four basic surveys and the Teacher Followup Survey as a *round*. For each round of SASS, the four basic surveys are conducted during a base school year and the Teacher Followup Survey during the following school year. The timing of the surveys for the first 3 rounds and the planned timing for Round 4 are as follows:

Round	Base year	Teacher Followup	Interval
1	1987-88	1988-89	n.a.
2	1990-91	1991-92	3 yrs.
3	1993-94	1994-95	3 yrs.
4	1997-98	1998-99	4 yrs.

Scope of the report This *SASS Quality Profile* describes the survey design and procedures for each of the SASS surveys for the latest round for which reasonably complete documentation was available at the time of writing. Thus, we describe the design and procedures used for the four basic surveys in Round 2, along with information on major changes between Rounds 1 and 2. For the Teacher Followup Survey, however, only the Round 1 design and procedures are described. Information about the *quality* of SASS data, such as unit and item response rates, is presented for all rounds for which it was available when this report was being prepared.

Sources of information about sampling and nonsampling errors Errors in surveys are of two kinds: sampling errors and nonsampling errors. Sampling errors are the result of basing survey estimates on a sample, rather than all units in the population of interest. Nonsampling errors can occur at any stage of a survey, including sample selection, data collection, data processing and estimation.

All publications based on SASS data include information about sampling errors of SASS estimates. Each publication in the Education Data Tabulations (E.D. Tabs) series includes separate tables with sampling errors for selected estimates included in the publication. A publication summarizing results from Round 1 of SASS (Choy, Henke, Medrich and Bobbitt, 1992) includes a table showing the estimated standard error for each estimate discussed in the text of the report and a table showing standard errors for selected public school estimates at the state level. Generalized variance functions, which provide approximations of sampling errors for all estimates, based on their size, are being developed for each of the surveys for both rounds (Salvucci and Holt, 1992; Salvucci, Holt and Moonesinghe, 1994; Salvucci, Galfond and Kaufman, 1993.) The documentation given to users of microdata files includes formulas and instructions for estimating standard errors of the items included in their analyses.

Information about nonsampling errors, which are the primary focus of this report, comes from several sources:

- Operational or performance data, including unit and item response rates, results of supervisory reviews of interviewers' work, results of reinterviews, and pre-edit and edit failure rates.
- Findings from pretests, in-depth group and individual interviews, and methodological experiments.
- Micro-evaluation studies, in which the accuracy of a sample of individual responses is evaluated by various means, such as intensive reinterviews or comparison with existing records.
- Macro-evaluation studies, in which the differences between survey estimates and comparable estimates from other sources are analyzed. Such studies may involve data from two or more SASS surveys or they may compare SASS data

with those from other NCES surveys or from surveys conducted by other organizations, such as the Bureau of the Census.

This report draws on all of these sources. It is based almost entirely on existing documentation; with minor exceptions, no new tabulations or analyses were undertaken to provide new material. We expect, however, that this systematic presentation of existing material will make it easier to identify gaps in what is known about the quality of SASS data and will lead to efforts to fill those gaps. Information provided by new documentation appearing after the beginning of 1994 has not been incorporated, but references to several such items, including papers to be presented at the 1994 annual meeting of the American Statistical Association and forthcoming contractor reports, have been included at appropriate points throughout this report.

Structure of the report The report has seven chapters. After this introductory chapter, there is a separate chapter for each of the five SASS surveys. Each of these chapters has sections covering: frame development and sample selection; data collection and associated errors; and data processing and estimation (including imputation and estimation of sampling errors). Each of the chapters for the 4 basic surveys also includes a section on evaluation of estimates. The final chapter discusses the principal sources of error in SASS surveys, reports on the status of recent and current research and evaluation studies, and suggests some ways in which data users may take account of sampling and nonsampling errors in SASS data. Exhibits and tables appear at the end of each chapter and a list of references follows the final chapter.

To avoid unnecessary overlap, the description of the sample design and selection for each of the five surveys covers only the *additional* stages of selection for that survey. Thus, for example, the sample design and selection procedures for schools are described in Chapter 2, The School Survey, and are not repeated in Chapter 3, The School Administrator Survey. For unit response rates, survey-specific rates are presented for each survey. In addition, where relevant, we present cumulative response rates, taking into account losses at all stages of sample selection and data collection.

Additional sources of information The references cited in this report include several kinds of NCES publications. A separate *Data File User's Manual* (sometimes referred to as the codebook) is available for each of the five Round 1 surveys (NCES, 1991a,b,c,d; Faupel, Bobbitt and Friedrichs, 1992) and is provided to purchasers of data tapes from those surveys. Common to each of the manuals for the four basic surveys is a section describing the survey design and procedures for all four basic surveys. This section is followed by documentation of the data files and copies of the questionnaire(s) for the survey covered by that manual. All of the contents of the manual for the Round 1 Teacher Followup Survey are specific to that survey. For Round 2, a *Data File User's Manual* covering all 4 of the basic surveys is now available (Gruber, Rohr and Fondelier, 1993). Volume I describes the design and procedures for the surveys, Volume II provides documentation of the restricted-use survey data files, and Volume III provides documentation of the public-use files. A separate *Data File User's Manual* has also been released for the Round 2 Teacher Followup Survey (Whitener, Rohr,

Bynum, Kaufman and King, 1994).

This *SASS Quality Profile* is one of a series of *technical and evaluation reports* that are "... designed for the audience that examines analytical methods, survey design, procedures, or data quality issues ..." (Elliott, 1991). Another technical report (Kaufman, 1991) gives a detailed description of the sample design and estimation for the four basic surveys in Round 1 and a comparable report for Round 2 (Kaufman and Huang, 1993) is now available.

Seven papers on various aspects of SASS methodology and the quality of SASS data were presented at the 1992 annual meeting of the American Statistical Association and are published in the 1992 *Proceedings of the Section on Survey Research Methods*. Two papers presented at the 1993 International Conference on Establishment Surveys are included in the proceedings of that conference. Additional papers on SASS methodology were presented at the 1993 annual meeting of the American Statistical Association and more will be presented at the 1994 annual meeting. These papers will appear in the *Proceedings of the Section on Survey Research Methods* for the two years.

In preparing this report we have relied on published sources whenever possible, but much of the information comes from unpublished memoranda and reports. Readers who would like to obtain copies of these items or who have questions about SASS findings and methodology should write to:

SASS Quality Profile
555 New Jersey Avenue, N.W.
Washington, D.C. 20208-5651

1.2 An overview of SASS

Objectives SASS is designed to provide periodic, timely data on public and private elementary and secondary schools in the United States. Major categories of data collected include school and teacher characteristics, school operations, programs and policies, teacher demand and supply, and the opinions and attitudes of teachers and school administrators about policies and working conditions. The analytical power of the data is enhanced by the ability to link survey data for individual local education agencies (LEAs), schools and teachers. The use of comparable questions in each round of SASS makes it possible to monitor changes in the nation's elementary and secondary education system. In each round, special inquiries can be included, subject to constraints on overall cost and burden on respondents.

SASS data provide a basis for addressing five major policy issues (Hudson and Darling-Hammond, 1987; Office of Educational Research and Improvement, n.d.):

- **Teacher supply and demand.** In what teaching fields do shortages exist? What school characteristics influence teacher supply and demand? How do the

characteristics of new hires compare with those of the existing work force? What distinguishes teachers who leave the profession from those who stay in it? What incentives are used to recruit and retain teachers in areas of shortage?

- **Characteristics of elementary and secondary teachers.** How does the training and experience of teachers compare for different types of schools? How do teachers' skills relate to their fields of assignment? What are the characteristics of specific subgroups of teachers, such as bilingual teachers?
- **Teacher workplace conditions.** How are teachers affected by working conditions, including teaching workloads, student-teacher ratios and resources available for teaching and professional development? How do teachers evaluate their working conditions?
- **Characteristics of school administrators.** What education and experience do the nation's elementary and secondary school administrators have? What problems do they consider to be serious, and how do they evaluate their influence on school policies?
- **School programs and policies.** How do schools vary with respect to admission requirements, graduation requirements, teacher salaries and benefits, teaching load and staffing patterns? How do graduation and college application rates vary by school? How many schools have special programs, such as remedial reading and mathematics, programs for the handicapped, programs for the gifted and talented, and extended day care programs? How many students are served by these programs?

An overview of the survey design The target populations for the SASS surveys, which are defined more fully in succeeding chapters, include U.S. elementary and secondary schools, principals and classroom teachers in those schools, former teachers, and local education agencies (LEAs) that are responsible for the administration of one or more public schools. For much of the private sector, there is no counterpart to the LEAs: information on teacher demand and shortages is collected directly from individual schools.

A schematic diagram of the sample selection and data collection process for Round 2 is shown in Exhibit 1.1. For each round of SASS, sample selection proceeds in stages:

- (1) A sample of schools is selected. The sample is designed to provide separate data for public and private schools, with detail by state for the public sector and by association group for the private sector. The same sample is used for the School Administrator Survey. For the sample of private schools, the questions for the Teacher Demand and Shortage Survey are included in the questionnaire for the School Survey.
- (2) Each LEA that administers one or more of the sample schools in the public sector becomes part of the sample for the Teacher Demand and Shortage Survey.

- (3) For each sample school, a list of teachers is obtained and a sample is selected for inclusion in the Teacher Survey.
- (4) A subsample of the teachers who participated in the Teacher Survey and continued teaching in the same or another school is selected and contacted during the following school year for the Teacher Followup Survey. All teachers who responded in the Teacher Survey and are no longer teaching in an elementary or secondary school are contacted in the Teacher Followup Survey.

There was a three-year interval between Rounds 1 and 2 and between Rounds 2 and 3. There will be a four-year interval between Rounds 3 and 4. As noted in Chapter 7, Section 7.3, the question of optimum periodicity for the surveys is currently being reviewed. Data for the four basic surveys are collected during a single school year. Most data items refer to that school year; questions on enrollment and staffing refer to October 1 of the school year. Questions for teachers about their current teaching loads refer to the most recent full week that school was in session.

The purpose of the Teacher Followup Survey, which is fielded approximately one year after the Teacher Survey, is to estimate teacher attrition and to provide data about the factors related to it. Topics covered include current employment and teaching status, future plans, additional training completed or begun since the baseline survey and current opinions about various aspects of teaching. Teachers who have moved or left the profession are asked about their reasons for doing so.

The main survey operations, including sample selection, data collection and data processing, are carried out by the Bureau of the Census under an interagency agreement, according to specifications provided by NCES. Questionnaires are distributed by mail, either directly or, for the Teacher Survey in Round 1 only, through school coordinators who distributed them to the sample teachers in their schools. Completed questionnaires are returned by mail to the Census Bureau's clerical processing office in Jeffersonville, Indiana. Telephone followup interviews of nonrespondents to the initial questionnaires are conducted by Census Bureau field representatives, working from their homes or from Census regional offices, and their questionnaires are also sent to the Jeffersonville facility.

The target populations, sample sizes and other key features of the five SASS surveys are summarized in Exhibit 1.2.

Evolution of the SASS design The first round of SASS integrated the design and operations of three existing survey programs: the Teacher Demand and Shortage Surveys, the Public and Private School Surveys, and the Teacher Surveys. Prior to Round 1 of SASS, a Public School Survey, covering both schools and teachers, had been conducted for school year 1984-85 and Private School Surveys had been undertaken in 1983-84 and 1985-86. A Teacher Demand and Shortage Survey, covering LEAs and private schools, had been conducted for school years 1978-79 and 1983-84 (NCES, 1992).

There were significant changes between Rounds 1 and 2 of SASS in the sampling frames from which samples of public and private schools were selected. In Round 1, the primary frame for each sector was a list of schools purchased from Quality Education Data, Inc. (the QED list). For the private sector, the QED list was supplemented with lists obtained from several private school associations and by an area sample (see Chapter 2, Section 2.2, for details). In Round 2, the main public school frame for SASS was the list of schools developed from NCES's 1988-89 Common Core of Data (CCD) program, which includes an annual census of LEAs and schools, by state. For private schools, the 1988-89 QED list, supplemented by lists obtained from private school associations, had been used as the frame for a universe survey, the 1989-90 Private School Survey. The same frame, with information added from the Private School Survey, was used to select the private school list sample for Round 2 of SASS. As in Round 1, the list frame was supplemented by an area sample, but the number of primary sampling units was increased from 75 to 123 (Gruber, Rohr and Fondelier, 1993; Kaufman and Huang, 1993).

A new feature of the Round 2 sample selection process was a procedure to control the amount of overlap between the Round 1 and 2 school samples. The proportion of overlap was varied by sector and by stratum within sector, based on an evaluation of the tradeoff between improved estimates of change (favoring more overlap) and expected effects on response rates (favoring less overlap) (Kaufman and Huang, 1993, Section 4). Additional design changes between Rounds 1 and 2 are described in Chapters 2 to 5, covering the 4 basic surveys.

The separate School and Teacher Demand and Shortage questionnaires used for private schools in Round 1 were combined to form a single Private School questionnaire in Round 2. Specific content changes are described in Chapters 2 to 5.

Round 3 incorporates further changes in content, design and procedures. A student questionnaire has become a new component of SASS. Procedures for obtaining student data from school records were tested in the spring of 1993 and this method is being used in Round 3 for students in a subsample of schools; however, direct collection of information from a sample of students and their parents is a possibility in future rounds. Round 3 also has a library component in which data about library media centers and specialists (librarians) are being collected for a subsample of schools.

The survey questionnaires have been modified to simplify the work of respondents. Some questions that required considerable effort but yielded little usable information have been dropped. Others have been reformatted for easier completion by respondents. Instructions for skipping items not relevant to all respondents have been clarified. New items will provide

information needed to monitor the National Education Goals for the year 2000, including data on topics such as school safety and drug use by students.

Except for the questionnaires sent to school districts and private schools, telephone followup of nonrespondents in Round 3 will be computer assisted and will be centralized in two

locations: Hagerstown, Maryland and Tucson, Arizona. There will also be some small-scale testing of the use of an automated data collection instrument for some types of respondents. An interactive diskette containing the school questions will be mailed to schools, completed by them using their own computer equipment, and returned by mail (Joseph and Oliveto, 1992).

Exhibit 1.1 Sample Selection and Data Collection Procedures for SASS: Round 2

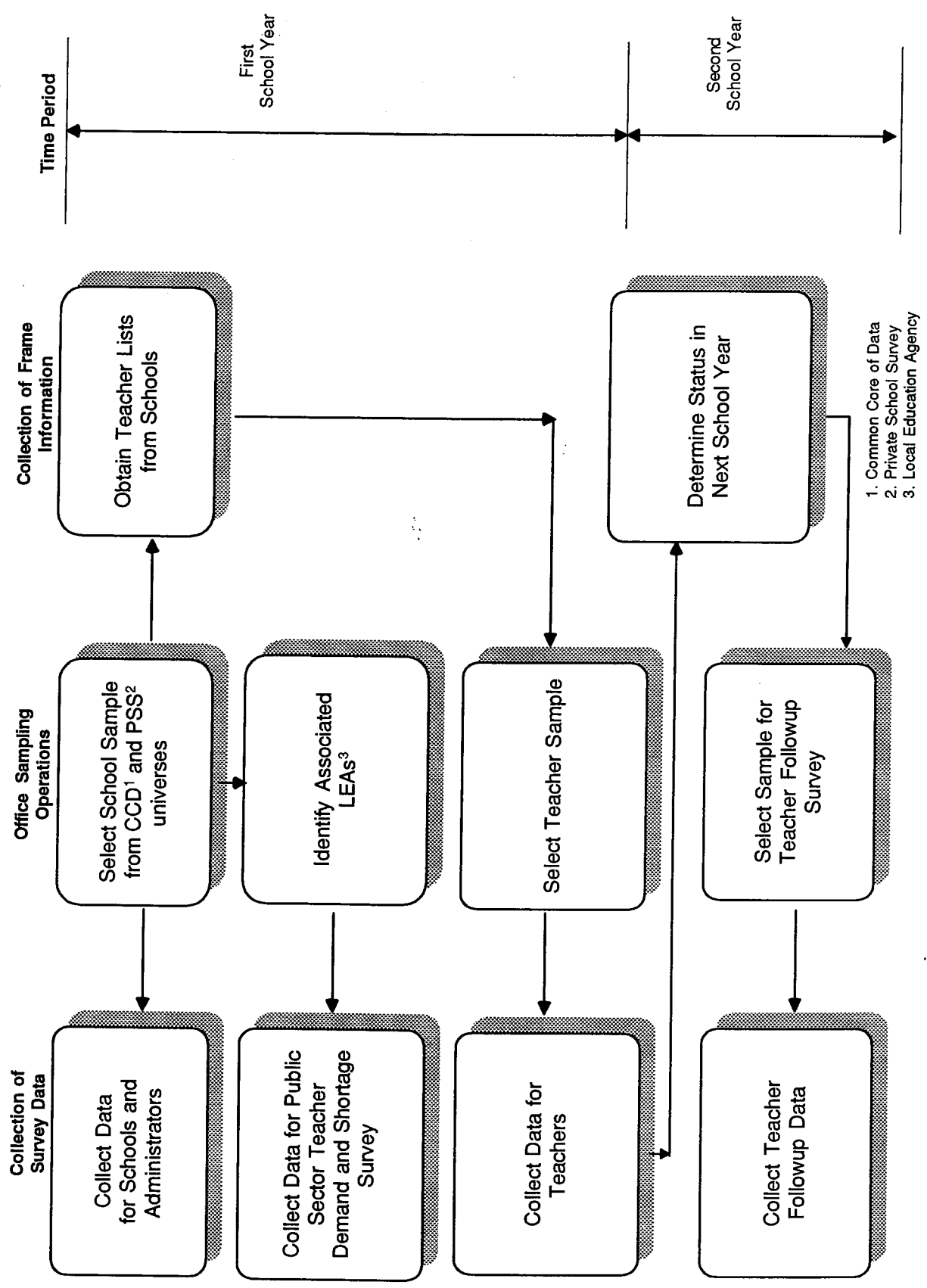


Exhibit 1.2

THE SASS SURVEYS

SURVEY FEATURES	BASE SURVEYS				TEACHER FOLLOWUP SURVEY
	SCHOOL	SCHOOL ADMINISTRATOR	TEACHER DEMAND AND SHORTAGE	TEACHER	
Target Population	Elementary and Secondary Schools	School Principals	Public: Local Education Agencies Private: Schools	Classroom Teachers	Present and Former Teachers
Major Domains for Analysis	Public Schools by State, Private Schools by Association Group				Stayers Movers Leavers
Approximate Sample Size, Round 1:					
Public	9,300	9,300	5,600	56,200	5,100
Private	3,500	3,500	3,500	13,000	2,100
Round 2:					
Public	9,600	9,600	5,500	56,100	5,100
Private	3,300	3,300	3,300	9,200	2,100
School Year of Data Collection:					
Round 1	<-----	1987-88	----->		1988-89
Round 2	<-----	1990-91	----->		1991-92
Round 3	<-----	1993-94	----->		1994-95