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Schools and Staffing Survey

1994-95 Teacher Followup Survey
Data File User's Manual
Restricted-use Version

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Introduction

How the Teacher Followup Survey is related to the Schools and Staffing Survey

The Teacher Followup Survey is a one-year followup of a sample of teachers who were originally selected for the Teacher Questionnaire in the Schools and Staffing Survey. The Schools and Staffing Survey is an integrated set of surveys of public and private schools, principals, teachers, and public school districts throughout the United States of America. There have been three data cycles for the Schools and Staffing Survey, and likewise, three Teacher Followup Surveys.

The 1994-95 Teacher Followup Survey data in this report links responses from the 1994-95 school year to characteristics of those same teachers who participated in the 1993-94 school year SASS. Within this report, there are some data that are drawn directly from the 1993-94 SASS. These data are termed "base year" because the SASS sample is the "base" for the teachers who are selected for the Teacher Followup Survey. Base year characteristics include personal and professional descriptors of the teacher (age, sex, race, field of teaching assignment), as well as characteristics of the school in which the teachers worked in 1993-94: whether the school was public or private, region of the country in which the school is located, and the community type or locale of the school. These "base year" characteristics provide the context for the data collected in the Teacher Followup Survey.

Purpose of the Teacher Followup Survey

How do teachers who remain teaching at the same school from year to year ("stayers") compare with those who don't? How many teachers move from one school to another ("movers")? What percentage of teachers are leaving the profession between one year and the next ("leavers")? These types of questions can be answered with data from the Teacher Followup Survey. For teachers who leave the profession, TFS asks about their occupational status (are former teachers working, retired, or caring for family members?) or whether they are seeking further education, and reasons for leaving teaching, as well as recommendations for how schools might retain teachers. Those who remain in teaching are asked about changes in teaching assignment, opinions about retaining teachers, and retirement plans. Both current and former teachers are asked for their current family income. Teachers who move from one school to another are asked to describe the type of school to which they moved. Data from the Teacher Followup Survey can be used to compare public and private teachers' job satisfaction, as well as movement within and out of the teaching profession

I. Overview

The 1994-95 Teacher Followup Survey (TFS) was sponsored by the National Center for Education Statistics (NCES) of the U.S. Department of Education to update information on teacher attrition and career patterns. The U.S. Bureau of the Census collected and processed the data.

The TFS is a survey of elementary and secondary school teachers who participated in the Schools and Staffing Survey (SASS)/1/ and is conducted in the school year following the SASS data collection. The sample for the 1994-95 TFS was selected from those teachers who participated in the 1993-94 SASS; it consisted of all who left teaching within the year after SASS was administered and a subsample of those who continued teaching.

A. Purpose of the Survey

The major objectives of TFS are to:

- Provide estimates of teacher attrition rates;
- Examine the characteristics of those who stay in the teaching profession and those who leave;
- Obtain data on occupations or other activities for those who leave teaching and career information for those who are still teaching;
- Update information on education, other training, and career plans;
- Collect data on attitudes about the teaching profession and job satisfaction.

Congress, state education departments, federal agencies, private school associations, teacher associations, and educational organizations have used data from the 1988-89 and 1991-92 TFS surveys.

B. Periodicity of Survey

The TFS was conducted in the 1988-89, 1991-92, and 1994-95 school years (after the 1987-88, 1990-91, and 1993-94 administrations of SASS, respectively). NCES currently plans to conduct the next survey in the 1999-2000 school year; it will collect data from a subsample of teachers who participate in the 1998-99 SASS.

C. Target Populations

The target population for the 1994-95 TFS was the universe of elementary and secondary school teachers who taught in schools that had a first grade and/or higher in the United States during the 1993-94 school year. This population was divided into two components--those who left teaching after the 1993-94 school year (former teachers) and those who continued teaching (current teachers).

D. Definitions

The following terms are used in this publication and are defined as they apply to TFS:

Teacher. A teacher is any full-time or part-time school staff

member who teaches one or more regularly scheduled classes in any of grades K-12 (or comparable ungraded levels)./2/ In addition to regular full-time teachers, the following types of teachers are also included: (1) itinerant teachers, (2) long-term substitutes who fill the role of a regular teacher on a long-term basis, (3) administrators, counselors, librarians, or other professional or support staff who teach any regularly scheduled classes, and (4) other part-time teachers.

Leavers. Teachers who left the teaching profession after the 1993-94 school year.

Movers. Teachers who were still teaching in the 1994-95 school year but had moved to a different school after the 1993-94 school year.

Stayers. Teachers who were teaching in the same school in the 1994-95 school year as in the 1993-94 school year.

Out-of-Scope TFS teachers. Teachers who left the United States or who died.

The following definitions were used in the 1993-94 SASS; they describe variables included on each TFS respondent's record to identify the school where he/she taught during the 1993-94 school year. They are also used in this publication.

Census region. The four Census regions are:

Northeast - Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania

Midwest - Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas

South - Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas

West - Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii

Common Core of Data (CCD). The Common Core of Data (CCD) is a group of surveys that collect public elementary and secondary education data from the 50 states, the District of Columbia, and the U.S. territories (American Samoa, Guam, Puerto Rico, Virgin Islands, Northern Marianas). CCD is an annual survey that collects information about staff and students in public schools at the school, district, and state levels. Revenue and expenditure data are also collected at the state level.

Local education agency (LEA). LEAs, or public school districts, are government agencies that employ elementary or secondary teachers and are administratively responsible for providing public elementary/secondary instruction and educational support services. Included are education agencies that do not operate schools but employ

teachers, e.g., regional cooperatives that employ special education teachers who teach in schools in more than one school district.

School, alternative. Alternative schools serve students whose needs cannot be met in a regular, special education, or vocational school. They provide nontraditional education and may serve as an adjunct to a regular school. They fall outside the categories of regular, special education, and vocational education, although they may provide similar services or curriculum. Some examples of alternative schools are those for potential drop-outs, residential treatment centers for substance abuse (if they provide elementary or secondary education), and schools for chronic truants.

School, BIA. BIA schools are schools funded by the Bureau of Indian Affairs, U.S. Department of Interior. These schools may be operated by the BIA, a tribe, a private contractor, or an LEA (or school district).

School, combined. A combined school has one or more of grades K-6 and one or more of grades 9-12; for example, schools with grades K-12, 6-12, 6-9, or 1-12 are classified as combined schools. Schools in which all students are ungraded (i.e., not classified by standard grade levels) are also classified as combined.

School, elementary. A school is classified as elementary if it has one or more of grades 1-6 and does not have any grade higher than grade 8; for example, schools with grades K-6, 1-3, or 6-8 are classified as elementary schools.

School, private. A private school is a school that is not supported primarily by public funds (i.e., it is not a public school). It must provide instruction for one of more of grades 1 through 12 (or comparable ungraded levels), have one or more teachers and be located in a building that is not used primarily as a private home. Organizations or institutions that provide support for home schooling but do not offer classroom instruction for students are not included.

School, public. A public school is an institution that provides educational services for at least one of grades 1 through 12 (or comparable ungraded levels), has one or more teachers, is located in one or more buildings, and is supported primarily by public funds. State schools (e.g., schools for the deaf or the blind), schools in juvenile detention centers, and schools located on military bases and operated by the Department of Defense are included.

School, secondary. A school is classified as secondary if it has one of more of grades 7-12 and does not have any grades lower than grade 7; for example, schools with grades 9-12, 7-8, 10-12, or 7-9 are classified as secondary schools.

School, special education. Special education schools provide educational services to students with special physical or mental needs, i.e., students with mental disabilities (such as mental retardation or autism), physical disabilities (such as hearing-impairment), or learning disabilities (such as dyslexia).

School, vocational. Vocational schools primarily serve students who are being trained for semi-skilled or technical occupations.

Typology, private school. Private schools were assigned to one of three major categories and, within each major category, one of three subcategories. The categories and subcategories are:

- Catholic - (1) parochial, (2) diocesan, and (3) private;

- Other religious - (4) affiliated with a conservative Christian school association, (5) affiliated with a national denomination, and (6) unaffiliated;

- Nonsectarian - (7) regular, (8) special program emphasis, and (9) special education./3/

Teacher, itinerant. An itinerant teacher teaches at more than one school, e.g., a music teacher who teaches three days per week at one school and two days per week at another.

Ungraded students. Ungraded students are those who are not assigned to a particular grade level (kindergarten, first grade, second grade, etc.); for example, special education centers and alternative schools often classify their students as ungraded. Students in Montessori schools are also considered ungraded if the school assigns them to "primary" and "intermediate" levels instead of specific grades.

II. Sample Design

A. SASS Sampling Frames

1. Public Schools

The public school sampling frame was based on the 1991-92 school year Common Core of Data (CCD). The CCD is collected annually by NCES from all state education agencies and is believed to be the most complete public school listing available. The frame includes regular public schools, some schools on Department of Defense military bases, and nonregular schools such as special education, vocational, and alternative schools. The frame also included 176 Bureau of Indian Affairs (BIA) schools.

2. Private Schools

The sampling frame for private schools was the 1991-92 Private School Survey (PSS)./4/ This data collection used two components to develop estimates of the number of private schools in the United States. A list frame was the primary private school frame and an area frame was used to identify schools not on the list frame and thereby compensate for the undercoverage of the list frame.

List Frame

The list frame used for the 1993-94 SASS private school sample was the same list used for the 1991-92 PSS. It consisted of approximately 25,051 schools from the PSS universe, which was updated in the spring of 1993 by using lists from 24 private school associations.

Area Frame

The SASS area frame consisted of a list of private schools that had not been included on the PSS universe and had not been reported by private school associations during the list frame updating operation. These schools were located in 123 selected PSUs/5/ throughout the United States.

For more information, see the technical report 1993-94 Schools and Staffing Survey: Sample Design and Estimation, by R. Abramson, C. Cole, S. Fondelier, B. Jackson, R. Parmer, S. Kaufman, (NCES 96-089).

Duplicate schools, as well as schools that did not meet the criteria for being in-scope for the survey (e.g., adult education centers, schools where the highest grade was prekindergarten or kindergarten, and tutoring services) were eliminated from the files before sampling. The resulting number of public schools on the 1993-94 public school frame was 82,746 (9,956 were sampled); the resulting number of private schools on the 1993-94 private school universe was 25,051 (3,315 were sampled). The list frame sample for 1993-94 SASS consisted of 3,162 schools. Additional duplicate private schools were discovered on the PSS after sampling had taken place; these schools received a weighting adjustment to account for their increased probability of selection. Additional out-of-scope public and

private schools were detected after processing the sample schools' SASS school questionnaires. These schools were eliminated from further processing of the school samples and are not part of any SASS estimates of the number of schools.

B. SASS Stratification

1. Public Schools

The first level of stratification divided the universe of public schools into four types: (A) BIA (Bureau of Indian Affairs) schools; (B) Native American schools (schools with 19.5% or more Native American students); (C) schools in Delaware, Nevada, and West Virginia (where it was necessary to implement a different sampling methodology to select at least one school from each LEA in the state because of the small number of LEAs); and (D) all other schools (i.e., all schools not included in A, B, or C).

For the second level of stratification, the type B schools were stratified by Arizona, California, Montana, New Mexico, Washington, and all other states (except Alaska, since most Alaskan schools have high Native American enrollment). The type C schools were stratified first by state and then by LEA. The type D schools were stratified by state (all states and the District of Columbia, except Delaware, Nevada, and West Virginia).

Within each second level of stratification, regular schools were divided into three grade level strata (elementary, secondary, and combined schools), defined as follows:

- Elementary - Lowest Grade <= 6 and Highest grade <= 8
- Secondary - Lowest Grade >= 7 and Highest grade <= 12
- Combined - Lowest Grade <= 6 and Highest grade > 8

Nonregular schools such as special education, vocational, technical, adult education (if part of in-scope school) or alternative/continuation schools were classified as combined schools.

2. Private Schools

For list frame private schools, the frame was partitioned into an initial set of 228 cells. The first level of stratification was school association membership:

(1) Military - membership in the Association of American Military Colleges and Schools;
(2) Catholic - affiliation as Catholic or membership in the National Catholic Educational Association or the Jesuit Secondary Education Association;
(3) Friends - affiliation as Friends or membership in the Friends Council on Education;
(4) Episcopal - affiliation as Episcopal or membership in the National Association of Episcopal Schools;

(5) Hebrew Day - membership in the National Society for Hebrew Day Schools;
(6) Solomon Schechter - membership in the Solomon Schechter Day Schools;
(7) Other Jewish - other Jewish affiliation;
(8) Missouri Synod - membership in the Lutheran Church, Missouri Synod school association;
(9) Wisconsin Synod - membership in the Evangelical Lutheran Church - Wisconsin Synod school association or affiliation as Evangelical Lutheran - Wisconsin Synod;
(10) Evangelical Lutheran - membership in the Association of Evangelical Lutheran Churches school association or affiliation as Evangelical Lutheran Church in America;
(11) Other Lutheran - other Lutheran affiliation;
(12) Seventh-Day Adventist - affiliation as Seventh-Day Adventist or membership in the General Conference of the Seventh-Day Adventist Church;
(13) Christian Schools International - membership in Christian Schools International;
(14) American Association of Christian Schools - membership in the American Association of Christian Schools;
(15) National Association of Private Schools for Exceptional Children - membership in the National Association of Private Schools for Exceptional Children;
(16) Montessori - membership in the American Montessori Society or other Montessori association;
(17) National Association of Independent Schools - member of the National Association of Independent Schools;
(18) National Independent Private School Association - member of the National Independent Private Schools;
(19) All else - member of any other association specified in the PSS or affiliated with a group not listed above or not a member of any association.

Within each association membership, schools were stratified by grade level (elementary, secondary, or combined). Within association/grade level, schools were stratified by four Census regions (Northeast, Midwest, South, or West).

C. TFS Stratification and Sample Allocation

The 1994-95 TFS is a survey of approximately 7,200 teachers interviewed in the 1993-94 SASS Teacher Survey. As described earlier, the purpose of the 1994-95 TFS was to measure teacher attrition rates one year after the 1993-94 SASS data collection. In SASS, schools were selected first. Next, teachers were selected within each sampled school. The TFS teachers were selected from the SASS teacher sample. The TFS sample is a stratified sample that was allocated to allow comparisons of stayers, movers, and leavers within sector (public/private), experience groups, and level. Therefore, for the TFS, the responding 1993-94 SASS teachers were stratified by four variables (sector, teacher status, experience, teaching level) in the order shown:

1) Sector: (Public/Private School Indicator)

Public - teachers who taught in a public school system in the 1993-94 school year;

Private - teachers who taught in a private school in the 1993-94 school year;

2) Teacher status:

Leavers - teachers in the 1993-94 school year who left the teaching profession prior to the 1994-95 school year;

Stayers - teachers in the 1993-94 school year who were still teaching in the same school in the 1994-95 school year as they were in the previous school year;

Movers - teachers in the 1993-94 school year who were still teaching in 1994-95, but who were in a different school in the 1994-95 school year;

Don't know - teachers whose status was unknown (or was not reported) in 1994-95 by staff at the school in which they taught in 1993-94.

3) Experience: (New/Experienced Teacher Indicator)

New - teachers who had three years or less teaching experience at the end of the 1993-94 school year;

Experienced - teachers who had more than three years of experience at the end of the 1993-94 school year;

The teacher status and the teacher's teaching experience was defined by the school.

4) Teaching level:

Elementary - teachers who taught elementary students in the 1993-94 school year regardless of the level of the school (elementary, secondary, or combined) in which they taught;

Secondary - teachers who taught secondary students in the 1993-94 school year regardless of the level of the school (elementary, secondary, or combined) in which they taught.

The final TFS sample allocation is summarized in Table II-1.

Table II-1.-TFS sample allocation

	Total	New	Experienced
Public	5,075	1,640	3,435
Leavers			
Total	1,784	264	1,520
Elementary	600	76	524
Secondary	1,184	188	996
Nonleavers	3,291	1,376	1,914
Elementary			
Total	1,739	746	993
Movers	728	402	326
Stayers	1,011	344	667
Secondary			
Total	1,551	630	921
Movers	614	360	254
Stayers	937	270	667
Private	2,098	766	1,332
Leavers			
Total	492	167	325
Elementary	240	78	162
Secondary	252	89	163
Nonleavers	1,606	599	1,007
Elementary			
Total	765	306	459
Movers	193	75	118
Stayers	572	231	341
Secondary			
Total	841	293	548
Movers	227	68	159
Stayers	614	225	389

Due to rounding, subtotals may not add to the total.

D. SASS Sample Selection

1. Public Schools

Before the sample of public schools was selected, the schools within each stratum were sorted. To facilitate the calculation of LEA weights, it was important to keep all schools within a stratum and Local Education Agency (LEA) together. To accomplish this, the first three digits of the ZIP code of all schools within a stratum and LEA were set equal to those of the first school in the stratum and LEA.

After the ZIP code was recoded, non-BIA/6/ schools within each stratum were sorted by the following variables:

1) State;
2) LEA metro status:
   1 = Central City of a Metropolitan Statistical Area (MSA)
   2 = MSA, not Central City
   3 = Outside MSA
3) Recoded LEA ZIP Code (The first three digits);
4) CCD LEA ID number;
5) Highest grade in school;
6) School percent minority:
   1 = < 5.5% or unknown
   2 = >= 5.5% and < 20.5%
   3 = >= 20.5% and < 50.5%
   4 = 50.5% or more;
7) School enrollment; and
8) CCD School ID (the CCD ID of the last school used.)

Within each stratum, non-BIA schools were systematically selected using a probability proportionate to size algorithm. The measure of size used was the square root of the number of teachers in the school as reported on the CCD file. Any school with a measure of size larger than the sampling interval was excluded from the probability sampling process and included in the sample with certainty. This selection process produced a sample of 9,780 non-BIA public schools.

2. Private Schools

Within each stratum, private schools in the list frame were sorted on the following variables:

1) State;
2) Highest grade in school;
3) Urbanicity:
   1 = Large Central City
   2 = Mid-size Central City
   3 = Urban Fringe of Large City
   4 = Urban Fringe of Mid-size City
   5 = Large Town
   6 = Small Town
   7 = Rural
4) ZIP Code (The first two digits);
5) 1991-92 PSS enrollment;
6) PIN number (a unique number that identifies the school on the PSS).

Within each stratum, private schools in the list frame were systematically selected using a probability proportionate to size algorithm. The measure of size used was the square root of the 1991-92 PSS number of teachers in the school. Any school with a measure of size larger than the sampling interval was excluded from the probability sampling process and included in the sample with certainty.

3. Teachers

Selecting the teacher sample in both public and private schools involved the following steps:

- The selected schools were asked to provide teacher lists;

- From the lists, 56,736 public school teachers and 11,548 private school teachers were selected.

The public and private teacher sample selections are described together because identical methodologies were used. The only differences were in the average number of teachers selected within a school.

Teacher Frame

Each selected school was asked to provide a list of their teachers with selected information for each teacher. Nine percent of the private schools and four percent of the public schools did not provide teacher lists. A factor in the teacher weighting system was used to adjust for these nonparticipant schools.

The sample schools were asked to provide the following information for each teacher listed:

- Whether the teacher was new or experienced, where "new" was defined as three years or less of teaching experience and "experienced" was defined as having more than three years of experience;

- Race/ethnicity;

- Whether teacher taught bilingual or English as a Second Language (ESL)classes;/7/

- Main subject taught (General elementary, special education, and all others for elementary level teachers; math, science, English, social studies, vocational education, special education, and all others for secondary teachers.)

The above information for each teacher in a selected SASS school comprised the school teacher frame.

Within each selected school, teachers were stratified into one of five teacher types in the following hierarchical order:

1) Asian or Pacific Islander (API)
2) American Indian or Aleutian or Eskimo (AIAE)
3) Bilingual/ESL
4) New
5) Experienced

Within-School Teacher Allocation

First, the total number of sample teachers to be selected for each school without regard to strata was

calculated assuming no teacher oversampling for new teachers. Then, to allocate across the strata, public school teachers were allocated to the new and experienced categories proportional to their numbers in the school. However, for private teachers, it was decided to oversample new teachers to ensure that there would be a sufficient sample of new teachers in the TFS. (This was also done in 1990-91 SASS.)

Asian or Pacific Islander, American Indian or Aleutian or Eskimo, and bilingual teachers were oversampled at a rate to ensure a set number of each group was selected. To make sure a school was not overburdened, the maximum number of teachers per school was set at 20. When the number of sample teachers exceeded 20 in a school, the Asian or Pacific Islander, American Indian or Aleutian or Eskimo, and bilingual teachers were proportionally reduced to meet the maximum requirement.

Within each teacher stratum, secondary teachers were sorted by teacher's main subject taught (as reported by the principal on the SASS Teacher List); and elementary teachers were sorted by general elementary, special education, or other teaching assignment. When combined schools had both elementary and secondary teachers, the teachers were sorted by grade level /main subject taught. This method was used to assure a good distribution of teachers by main subject taught.

Within each school and teacher stratum, teachers were selected systematically with equal probability.

A total of 68,284 teachers were selected for SASS (62,770 new and experienced; 1,735 Asian Pacific Islander; 1,661 American Indian or Aleutian or Eskimo; and 2,118 bilingual/ESL). Table II-2 shows the number of selected teachers in SASS sample by teacher type and sector.

Table II-2.-Number of selected teachers in SASS sample, by teacher type and sector

Teacher type	Public	Private	Total
American Indian/Aleut/Eskimo	1,525	136	1,661
Asian/Pacific Islander	1,483	252	1,735
Bilingual/ESL	2,024	94	2,118
New	4,799	2,182	6,981
Experienced	46,905	8,884	55,789
Total	56,736	11,548	68,284

E. TFS Sample Selection

Sorting. Within each public TFS stratum, teachers who responded to the 1993-94 SASS Teacher Survey were sorted by teacher subject, Census region, urbanicity, school enrollment, and SASS teacher control number. Within each private TFS stratum, responding teachers were sorted by teacher subject, association membership (list frame), affiliation (area frame), urbanicity, school enrollment, and SASS teacher control number.

Sample Selection. After they were sorted, teachers were

selected within each stratum using a probability proportional to size sampling procedure. The measure of size was the 1993-94 SASS intermediate teacher weight, which is the product of the Basic Weight, Sampling Adjustment Factor, School Nonresponse Factor, Teacher Noninterview Factor, and the First-Stage Ratio Adjustment Factor. (See Table II.1 for more details on TFS Sample allocation.)

For more information about weights and estimation in SASS, see the technical report 1993-94 Schools and Staffing Survey: Sample Design and Estimation, by R. Abramson, C. Cole, S. Fondelier, B. Jackson, R. Parmer, S. Kaufman, (NCES 96-089).

III. Data Collection

A. Time Frame of the Survey

The Bureau of the Census collected the 1994-95 TFS data during the 1994-95 school year. Table III-1 summarizes the specific data collection activities and the time frame in which each occurred.

Table III-1.-Data collection time schedule

Activity	Month of Activity
Advance letters mailed to LEAs and state administrators	August 1994
Teacher Status Forms (TFS-1) and letters mailed to sample schools	September 1994
Reminder postcards mailed to sample schools	September 1994
Telephone followup of Teacher Status Forms not returned by schools	October-November 1994
Initial mailing of leaver/stayer questionnaires (TFS-2 and TFS-3)	January 1995
Second mailing of leaver/stayer questionnaires (TFS-2 and TFS-3)	February 1995
Telephone followup of mail questionnaire nonrespondents	March-May 1995

B. Data Collection Procedures

The U.S. Bureau of the Census collected TFS data in two phases:

Phase 1 - In September 1994, the Census Bureau mailed teacher status forms (TFS-1) to schools that had provided lists of teachers for 1993-94 SASS. On this form, the school principal (or other knowledgeable school staff member) was asked to report the current occupational status of each teacher who participated in the 1993-94 SASS, by indicating whether he/she was still at the school in a teaching or nonteaching capacity, or had left the school to teach elsewhere or for a non-teaching occupation. One week after the TFS-1 mailout, reminder postcards were mailed to the sample schools. In October and early November, Census interviewers telephoned schools that had not returned the TFS-1 to obtain the requested information.

If the school staff indicated a sample teacher had moved, the Census Bureau also tried to obtain address correction information for the sample teacher's home address through the post office.

Phase 2 - In January 1995, the TFS questionnaires were mailed to selected teachers and former teachers. The Questionnaire for Former Teachers (TFS-2) was sent to sample

persons reported by school administrators as having left the teaching profession. The Questionnaire for Current Teachers (TFS-3) was sent to sample persons who were reported as still teaching at the elementary or secondary level. When home addresses were available, the questionnaires were mailed there. Otherwise, they were mailed to the sample teacher's 1993-94 school.

In February, the Census Bureau mailed a second questionnaire to each sample person who had not returned the first questionnaire. Also, for those who returned the first form and indicated that it did not apply to them (because their status was incorrectly reported by their 1993-94 school), the appropriate questionnaire was mailed to them. For example, if a sample person who was teaching in another school received the questionnaire for former teachers (TFS-2), he/she was instructed to return the questionnaire; the Census Bureau sent the correct questionnaire (TFS-3 for current teachers) to the respondent during the second mailout.

In late March 1995, Census interviewers began calling sample persons who had not returned a mail questionnaire. In addition to these nonresponse followup cases, some "nonmailable" cases (cases with incomplete addresses) were assigned for telephone followup. If the interviewers were unable to contact a sample teacher through a contact person (two contact persons had been listed by the sample teacher on the SASS form as knowing how or where to get in touch with him or her) or through directory assistance, they called the sample person's 1993-94 school to obtain information about the person's current address or employer. Telephone followup of nonrespondents ended in May 1995.

During the telephone followup, the interviewers used form TFS-4, Telephone Questionnaire for the Teacher Followup Survey 1994-95, to collect the data. This form was a combination of the TFS-2 and the TFS-3 questionnaires; i.e., data for a current or a former teacher could be recorded on this single form.

IV. Edit Procedures

A. Clerical Edit

Questionnaires returned by individual respondents and those completed by Census interviewers during telephone followup were sent to the Census Bureau processing center in Jeffersonville, Indiana. Upon receipt, clerks assigned codes to each questionnaire to indicate its status--e.g., complete interview, refusal, deceased. Then they performed a general clerical edit that included reviewing all entries for legibility and making corrections, e.g., changing "one" to "1" and rounding fractions to whole numbers. For the TFS-2 (Questionnaire for Former Teachers), the clerks also assigned industry and occupation codes/8/ to the respondent's current job (questionnaire item 3). For TFS-3 (current teachers) respondents teaching in a different state, they assigned a state FIPS code to the respondent's new state (questionnaire item 13).

After the clerical edit, the questionnaires were batched by type and interview status (i.e., interviews, noninterviews, out-of-scope for survey) for data keying. Data entry personnel were instructed to correct all errors identified during the keying operation and to refer problem cases to their supervisor. To assure the quality of the data, all keying was independently verified at the 100 percent level.

B. Preliminary ISR Classification

After keying data, the next step in processing was to make a preliminary determination of each case's interview status (ISR)--i.e., whether it was an interview, a noninterview, or out-of-scope for the survey. In general, those cases with "out-of-scope" check-in codes (assigned by clerks when questionnaires were received at the processing center) were classified as out-of-scope (ISR=3) for the preliminary ISR.

Otherwise, cases with data entries were classified as interviews (ISR=1) and those with no data were classified as noninterviews (ISR=2).

C. Computer Edit

After the assignment of the preliminary ISR code, the file was divided into two files: (1) former teachers (leavers) and (2) current teachers (stayers and movers). Then these files were submitted to a computer edit that consisted of a range check, a consistency edit, and a blanking edit. Only records classified as interviews in the preliminary ISR were edited.

The range check deleted entries that were outside the range of acceptable values.

The consistency edit identified inconsistent entries within each record and, whenever possible, corrected them; if they could not be corrected, the entries were deleted.

Example: If the respondent answered "Yes" in Item 9 to indicate that he/she had earned a college degree during the past 12 months but recorded a date in Item 10 (month and year of degree) that was later than June 1995, the

"Yes" response in Item 9 was changed to "No" in the consistency edit and the entry in Item 10 was deleted.

The blanking edit deleted extraneous entries and assigned the "not answered" (.N) code to items that should have been answered but were not.

D. Final Interview Status Edit

After the range check, consistency edit, and blanking edit were completed, the records were edited to determine whether the case was eligible for inclusion in the survey and, if so, whether sufficient data had been collected for the case to be classified as an interview. An interview status recode (ISR) value was then assigned to each case as a result of the edit:

- A case was classified as out-of-scope (ISR=3) if the respondent had died or moved out of the United States.

- A TFS-2 case (former teacher) was classified as an interview (ISR=1) if four of these items were reported:

  Item 1 - Main occupational status
  Item 4 - Full-time/part-time employee status
  Item 5 - Earnings at new job
  Item 8 - Main activity for next year
  Item 18 - Whether respondent plans to return to teaching
  Item 23a - Main reason for leaving teaching profession

- A TFS-3 case (current teacher) was classified as an interview (ISR=1) if six of these items were reported:

  Item 5a - Full-time/part-time teaching status
  Item 7a - Main teaching assignment field
  Item 8a - Whether respondent is certified in main teaching assignment field
  Item 9a - Whether respondent is certified in other teaching assignment field
  Item 10 - Grade levels of students taught by respondent
  Item 11 - Type of community where school is located
  Item 12 - Whether respondent has changed schools
  Item 28 - Main activity for next year
  Item 51b(1) - Teaching salary
  Item 51c - Total earned income

- A case was classified as a noninterview (ISR=2) if the conditions for out-of-scope cases and interview cases were not met.

Table IV-1.-Number of 1994-95 Teacher Followup Survey teachers in sample, by sector and interview status

Teachers in sample	Interviewed	Not interviewed	Out-of-scope
Public	4,528	463	34
Current teachers	2,798	281	2
Former teachers	1,730	182	32
Private	1,751	330	17
Current teachers	1,175	232	0
Former teachers	576	98	17
BIA	44	6	0

NOTE: Noninterviews and out-of-scope teachers are not included in the TFS analytic or public-use datafiles.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Teacher Followup Survey, 1994-95," (TFS-2 Former Teachers Questionnaire, and TFS-3, Current Teacher Questionnaire) unpublished tabulations.

V. Response Rates

A. Survey Response Rates

Table V-1 summarizes the weighted and unweighted response rates for the TFS (shown in percentages).

Table V-1.-Response rates, by sector and teaching status, unweighted and weighted

Sampled Teachers	Interviews Unweighted	Weighted
Public	90.7	92.3
Current teachers	90.9	92.5
Former teachers	90.5	89.2
Private	84.1	87.2
Current teachers	83.5	87.2
Former teachers	85.5	87.6
BIA	88.0	99.5
Current teachers	95.5	99.9
Former teachers	82.1	88.9
Total	88.8	91.6
Current teachers	88.6	91.8
Former teachers	89.1	88.8

Table V-2.-Survey response rates for 1993-94 SASS Teacher List, 1993-94 Schools and Staffing Teacher Survey and 1994-95 Teacher Followup Survey, weighted

	Sector			
	Public		Private	
Components	Current teachers/a/	Former teachers	Current teachers	Former teachers
SASS Teacher List response rate/b/	95.0		91.0	
SASS Teacher Survey response rate/c/	88.2/d/		80.2/e/	
Teacher Followup Survey response rate/f/	92.5	89.2	87.2	87.6

/a/Includes stayers and movers.
/b/Percent of schools providing teacher lists for the 1993-94 SASS sample, unweighted.
/c/Percent of eligible sample teachers responding to the 1993-94 SASS Teacher Survey, weighted.
/d/This rate does not include the 5 percent of the public schools which did not provide teacher lists.
/e/This rate does not include the 9 percent of the private schools that did not provide teacher lists.
/f/Percent of eligible sample teachers responding to the 1994-95 Teacher Followup Survey, weighted.

A cumulative overall response rate is the product of the survey response rates shown in Table V-2; (SASS Teacher List response rate) (SASS Teacher Survey response rate) (TFS Teacher response rate). The cumulative overall response rates by sector and teacher status for the 1994-95 TFS are:

Public current teachers: (.95)(.882)(.925)(100)=80.0.
Public former teachers: (.95)(.882)(.892)(100)=74.7.
Private current teachers: (.91)(.832)(.872)(100)=66.0.
Private former teachers: (.91)(.832)(.876)(100)=66.3.

B. Item Response Rates

Table V-3 is a brief summary of the unweighted item response rates for the 1994-95 TFS questionnaires. A response rate for an item is defined as the number of records with valid responses to that item divided by the number of eligible respondents for the item.

Table V-3.-Summary of Unweighted Item Response Rates

	Former teachers	Current teachers
Range of item response rates	78-100%	52-99%
Percentage of items with a response rate of 90% or more	92.6%	90.4%
Percentage of items with a response rate less than 80%	1.2%	4.1%
Items* with a response rate less than 80%	7	9b, 9c, 48i, 51a(1), 51a(2), 51a(3), 51b(3), 51b(4), 57b

*The questionnaire wording for these items can be found in Appendices B and C of this publication.

VI. Imputation

For questionnaire items that should have been answered but were not, values were imputed by using data from (1) other items on the questionnaire, (2) the 1993-94 SASS Teacher Survey record for the same respondent, and (3) data from the record for a respondent with similar characteristics (commonly known as the nearest neighbor "hotdeck" method for imputing for item nonresponse/9/).

For some incomplete items, the entry from another part of the questionnaire, the SASS Teacher Survey record, or the data record for a similar case was directly imputed to complete the item; for others, the entry was used as part of an adjustment factor with other data on the incomplete record.

The procedures described above were carried out by computer processing. However, for a few items there were cases where entries were clerically imputed. The data record, SASS teacher file record, and in some cases, the questionnaire were reviewed and an entry consistent with the information from those sources was imputed. This procedure was used when (1) there was not suitable record to use as a donor, (2) the computer method produced an entry that was outside the acceptable range for the item, or (3) there were very few cases where an item was unanswered (usually less than 10).

Values were imputed to items with missing data within records classified as interviews (ISR=1). Noninterview adjustment factors were used during the weighting process to compensate for data missing because the sample person was a noninterview (ISR=2).

Entries imputed to TFS records are identified by flags that denote the stage or type of imputation: 1 = ratio adjustment of original entry; 2 = entry was imputed by using other data on the record or from the SASS teacher file; 3 = entry was imputed by using data from the record for a similar sample person (donor); 4 = clerical imputation; 0 = not imputed.

The variable names for these flags are F_ (variable name), where variable name is the variable name for the data entry, e.g., F_TFS012 is the imputation flag for variable TFS012 (item 6 of the TFS-2).

VII. Weighting

A. SASS Teacher Weights

The SASS teacher basic weight is the inverse of the probability of selection of the teacher. Teacher basic weights were adjusted to account for schools that refused to provide lists of teachers (school nonresponse adjustment factor), and for teachers who were selected for the survey but did not provide questionnaire data (teacher noninterview factor). In addition, the school sampling adjustment factor and the first-stage ratio adjustment factor were also applied to produce the final weight.

School sampling adjustment factor was applied to certain schools to account for duplicate records, merged schools, or any other circumstance that would affect the school's true probability of selection.

School nonresponse adjustment factor was calculated to compensate for schools that refused to provide lists of their teachers.

First stage ratio adjustment factor adjusted the sample weighted count of all cases (interviewed, noninterview, and out-of-scope) to known frame totals. For public schools, the frame totals such as grade level by urbanicity by state came from the 1991-92 CCD. For private schools on the list frame, the updated private school list frame universe was the source of totals such as grade level by association membership.

B. TFS Teacher Weights

The final TFS sample weight equals:

TFS basic weight x SASS weighting adjustment factor x TFS noninterview adjustment x TFS ratio adjustment

where:

TFS basic weight is the inverse of the probability of selecting a teacher for TFS. This weight is the product of the intermediate teacher weight from SASS (described in previous section) and TFS subsampling adjustment factor. The TFS subsampling adjustment factor is an adjustment that accounts for the subsampling of teachers from SASS sample teachers.

SASS weighting adjustment factor is used to adjust for the fact that preliminary SASS final weights were used in computing the TFS basic weight. The weighting adjustment factor adjusts for any changes that may have occurred between the preliminary and final weighting calculations.

TFS noninterview adjustment is the factor used to adjust for teachers who participated in SASS but did not participate in the 1994-95 TFS.

TFS ratio adjustment is the factor used to adjust the TFS sample totals to known SASS sample totals. This adjustment ensures that the weighted number of TFS teachers (interviews, noninterviews, and out-of-scopes) will equal the weighted number of SASS teachers

from 1993-94.

VIII. Variance Estimation

The previous SASS surveys (1987-88 and 1991-92) used the variance procedure known as balanced half sample replication (BHR). A fundamental problem with BHR is that it assumes sampling is done with replacement. Hence, BHR cannot reflect the increase in precision due to sampling a large proportion of a finite population. For most surveys, where the sampling rates are small, the increase in precision will be small and can be safely ignored. However, in SASS the public surveys (school, principal, teacher, library, and librarian) are designed for reliable state estimates. This necessarily implies large sampling rates, which can lead to very large variance overestimates with BHR. Likewise, some of the private surveys (school, principal, and teacher) are designed to produce detailed private association estimates, which also imply large sampling rates, and variance overestimation with BHR.

To overcome this problem, a bootstrap variance estimator was implemented for the 1993-94 SASS. The bootstrap variance reflects the increase in precision due to large sampling rates.

The idea behind bootstrap variance estimation/10/ is to use the distribution of the sample weights to generate a bootstrap frame. Bootstrap samples can be selected from the bootstrap frame, replicate weights computed, and variances estimated with standard BHR software. The bootstrap replicate basic weights (inverse of the probability of selection) were subsequently reweighted by processing each set of replicate basic weights through the full-sample weighting procedure.

Further analysis of the bootstrap replicate basic weights revealed that approximately 6% of SASS school replicate weights fell outside a 95% confidence interval. This is only slightly higher than the expected 5% and indicates the bootstrap replicate weights are close to normally distributed.

Public schools. The SASS public school data files contain a set of 48 bootstrap weights, which can be used with any BHR software package. If the package requires specifying a variance methodology, BHR can be specified. At this point, variance computation is similar to the previous SASS and TFS rounds. The difference is in the use of bootstrap methods to produce the replicate weights.

Public school principal replicate weights are the same as the school replicate weights.

Private schools. For private schools, the list frame used the bootstrap methodology as described above. For the area frame, the PSU sampling rates were very small, negating the advantage of using bootstrap.

BHR methodology was employed in the area frame as it has been for all previous SASS. Half-samples are defined by pairing sample PSUs within each sampling stratum, forming variance strata. The final product is a set of 48 replicate weights. After the variance strata were assigned, an orthogonal matrix was used to form the 48 balanced half-sample replicates. Thus, the same methodology can be applied to both the list frame and the area frame replicate weights to compute variances.

Teacher replicates. The teacher replicate weights are generally equal to the school bootstrap replicate weights times the inverse of the conditional probability of selection of the teacher given the school was selected in the SASS school sample. These adjusted bootstrap replicate weights are provided on the file. BHR methodology was employed rather than bootstrap in two

instances. First, if a school was selected with certainty and, subsequently, teachers were not sampled with certainty, no bootstrap replicate weights were available, so records were sorted by school stratum, order of selection, and control number, and then assigned variance stratum and panel.

The second instance was in the private area frame. These teacher sample records were assigned replicate weights by multiplying the school BHR replicate weights by the teacher's conditional probability of selection given the school was selected in the SASS school sample.

TFS teachers. Since the TFS sample was a proper subsample of the SASS teacher sample, the SASS teacher replicates were used for the TFS sample. The TFS basic weight for each TFS teacher was multiplied by each of the 48 SASS replicate weights divided by the SASS teacher full-sample intermediate weight for that teacher. To calculate 48 replicate weights which should be used for variance calculations, these TFS replicate basic weights were processed through the remainder of the TFS weighting system.

A variance estimate is obtained by first calculating the estimate for each replicate, then summing the squared deviations of the replicate estimates from the full-sample estimate, and finally dividing by the number of replicates:

```
Sigma(hat y[subscript k] - hat y)squared / 48
  k

where k = 1, 2 .....48,

hat y[subscript k] = k'th replicate estimate

and hat y = full sample estimate.
```

When calculating variance estimates for some small subdomains of interest (e.g., vocational education teachers), sparseness of the data may result in there being no data from some replicates. This can result in either an extremely large variance estimate or failure of the software used to calculate the variance, with possibly a warning message.

WESTAT, Inc. has developed a PC-based replication program, WesVarPC. WesVarPC is available on the World Wide Web. The URL for WESTAT, Inc. is http://www.westat.com. There is a link on the WESTAT home page to the WesVarPC home page. WesVarPC version 2.1, along with the documentation, is available for download at no charge.

IX. Reinterview Program

The purpose of the reinterview for the TFS was to evaluate response variance. Measuring response variance allows us to determine the degree of variability between the original interview responses and the reinterview responses. If the degree of variability is high, questions that need improvement can be determined. A sample of 1,545 cases was selected, expecting 1,000 completed reinterviews. Oversampling occurred to account for potential nonresponse based on the 1991-92 TFS. In actuality we obtained 870 completed reinterviews.

We used two reinterview questionnaires-the TFS-3(R) for mail cases and the TFS-3(R)T for telephone cases. Each questionnaire contained a subset of questions from the original questionnaire.

The TFS reinterview took place from February 21, 1995 through June 16, 1995. An analysis of the reinterview data is in progress.

X. Confidentiality Protection Measures

The 1994-95 TFS data are released in accordance with the provisions of the General Education Provisions Act (GEPA) (20 USC 1221e-1) and the Carl D. Perkins Vocational Education Act. GEPA ensures privacy by ensuring that respondents will never be individually identified.

Under Public Law 100-297, the NCES is responsible for protecting the confidentiality of individual respondents and is releasing data to the public to use for statistical purposes only. Record matching or deductive disclosure by any user is prohibited.

To ensure that the confidentiality provisions contained in PL 100-297 have been fully implemented, procedures for disclosure avoidance were used in preparing the data tape in this release. Every effort has been made to provide the maximum research information consistent with reasonable confidentiality protections.

To prevent disclosure of the identities of teachers on the public use data tapes, state identifiers (for the public school teachers) and state, regional, and detailed affiliation and association codes (for the private school teachers) have been removed. In addition, continuous variables on the questionnaire that would permit disclosure of a teacher's identity (age and salary) have been coded into categories. The new categories for recoded variables are defined for the appropriate source codes on the attached tape record layouts. A few items have been deleted from the files altogether because of disclosure problems. These will be missing on the record layouts.

Difference between public and restricted use file. To protect the confidentiality of responding teachers, certain categories were collapsed on the public use file so that teachers cannot be identified. These included base academic year salary, teacher's age, total enrollment, percent minority enrollment, and the community type (rural, small town, urban, and central city) of the school. State identifiers and school affiliation were deleted from the public use file.

XI. Changes to TFS Content from 1991-92 to 1994-95

Some changes to wording and the order of specific items has occurred. Also, a new section was added to the Questionnaire for Current Teachers (TFS-3) to collect data on teaching methods. These new questions are Items 31-50.

XII. Caution Concerning the Measurement of Change Using 1991-92 and 1994-95 TFS

Changes in question wording. Caution must used in the interpretation of change estimates between 1991-92 and 1994-95 TFS since specific questions are not always worded the same in both surveys.

XIII. User Notes and Comments

We are interested in your reaction to the information presented here about the Teacher Followup Survey (TFS) data collection system as well as the microdata files we release. We welcome your recommendations for improving our survey work and data products. If you have suggestions or comments or want more information about this report, please contact:

Teacher Followup Survey
National Center for Education Statistics
555 New Jersey Avenue, NW
Washington, DC 20208-5651

We are also interested in the research you do using the TFS data sets. We would be pleased to receive copies of reports, working papers, and published articles you write, which use data from the TFS. Send them to the address above.

THANK YOU FOR TAKING THE TIME TO RESPOND!

ENDNOTES

/1/ For a complete description of the 1993-94 Schools and Staffing Survey, see "1993-94 Schools and Staffing Survey: Data File User's Manual, Volume I: Survey Documentation," by Gruber, K., Rohr, C., and Fondelier, S., U.S. Department of Education, National Center for Education Statistics (NCES 96-142-I).

/2/ This definition was revised for the 1993-94 SASS and differs from the one used for previous administrations of SASS and TFS. In previous SASS and TFS surveys, a teacher was defined as a school staff member whose primary assignment was teaching in any of grades K-12 (or comparable ungraded levels). School staff whose primary assignment was something other than teaching were excluded, even if they taught some regularly scheduled classes.

/3/ See M. McMillen and P. Benson, "Diversity of Private Schools", Technical Report, NCES 92-082 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 1991).

/4/ U.S. Department of Education, National Center for Education Statistics, "Private School Universe Survey, 1991-92," (E. Gerald, M. McMillen, S. Kaufman) NCES 94-350.

/5/ A PSU is a primary sample unit, which is a geographic area consisting of one or more contiguous counties or an independent city.

/6/ BIA schools were not sorted since they were designated to be in sample with certainty. All 176 BIA schools were in the 1993-94 SASS school sample.

/7/ In bilingual classes, subject matter (science, math, social studies, etc.) is taught by using a language other than English. In ESL classes, English is taught to students whose primary language is not English.

/8/ The lists of industry and occupation codes used for TFS-2 item 3 are provided in Appendix D of this publication.

/9/ Kalton, G. and Kasprzyk, D. (1982), "Imputing for Missing Survey Responses," Proceedings of the Section on Survey Research Methods, American Statistical Association, 22-31; Kalton, G., Compensating for Missing Survey Data. Ann Arbor: Survey Research Center, University of Michigan, 1983; Kalton, G. and Kasprzyk, D. (1986), "The Treatment of Missing Survey Data," Survey Methodology, Vol. 12, No.1, pp. 1-16; Little, R. J. A. and Rubin, D. B. (1987), Statistical Analysis with Missing Data, John Wiley and Sons; Madow, W. G., Olkin, I., and Rubin, D. B. (eds.) 1983, Incomplete Data in Sample Surveys, Vols. 1, 2, and 3, New York, Academic Press.

/10/ For more information about bootstrap variance methodology and how it applies to SASS and TFS, see: Efron, B (1982), The Jackknife, the Bootstrap and Other Resampling Plans, SIAM No. 38; Kaufman , S. (1992), "Balanced Half-sampled Replication with Aggregation Units," Proceedings of the Section on Survey Research Methods, American Statistical Association, 1992. Alexandria, VA: American Statistical Association. Kaufman, S. (1993), "A Bootstrap Variance Estimator for the Schools and Staffing Survey," Proceedings of the Section on Survey Research Methods, American Statistical Association, 1993. Alexandria, VA: American Statistical Association. "Properties of the Schools and Staffing Survey's Bootstrap Variance Estimator," Proceedings of the Section on Survey Research Methods, American Statistical Association, 1994. Alexandria, VA: American Statistical Association. Sitter, R.R. (1990), "Comparing Three Bootstrap Methods for

Survey Data," Technical Report Series of the Laboratory for Research in Statistics and Probability, Carlton University.

Appendix A

Teacher Followup Survey-Questionnaire for Current Teachers

For a copy of the Questionnaires while supplies last, contact:

National Education Datat Resource Center
Telephone (703)845-3151
Fax (703)820-7465

Appendix B

Teacher Followup Survey-Questionnaire for Former Teachers

For a copy of the Questionnaires while supplies last, contact:

National Education Datat Resource Center
Telephone (703)845-3151
Fax (703)820-7465

Appendix C

Crosswalk of 1988-89, 1991-92, and 1994-95 TFS Variables

Appendix C: Crosswalk among items in the 1988-89, 1991-92, 1994-95 TFS questionnaires.

Former Teachers Questionnaire (TFS 2)

1988-89 Variable name	1991-92 Variable name	1994-95 Variable name
	TFS003	TFS002
TFS002	TFS002	TFS003
TFS004	TFS004	TFS004
TFS005	TFS005	TFS005
TFS006	TFS006	TFS006
TFS007	TFS007	TFS007
TFS008	TFS008	TFS008
TFS009	TFS009	TFS009
TFS010	TFS010	TFS010
TFS011	TFS011	TFS011
TFS012	TFS012	TFS012
TFS013	TFS013	TFS013
TFS014	TFS014	TFS014
TFS015	TFS015	TFS015
TFS016	TFS016	TFS016
TFS017	TFS017	TFS017
TFS018	TFS018	TFS018
TFS019	TFS019	TFS019
TFS020	TFS020	TFS020
TFS021	TFS021	TFS021
TFS022	TFS022	TFS022
TFS023	TFS023	TFS023
TFS024	TFS024	TFS024
TFS025	TFS025	TFS025
TFS026	TFS026	TFS026
TFS027A	TFS027	TFS027
TFS027B	TFS028	TFS028
TFS027C	TFS029	TFS029
TFS027D	TFS030	TFS030
TFS027E	TFS031	TFS031
TFS028	TFS032	TFS032
TFS029A	TFS033	TFS033
TFS029B	TFS034	TFS034
TFS029C	TFS035	TFS035
TFS029D	TFS036	TFS036
TFS029E	TFS037	TFS037
TFS030	TFS038	TFS038
TFS031	TFS039	TFS039
TFS032	TFS040	TFS040
TFS033	TFS041	TFS041
TFS034	TFS042	TFS042
TFS035	TFS043	TFS043
TFS036	TFS044	TFS044

TFS037	TFS045	TFS045
TFS038	TFS046	TFS046
TFS039	TFS047	TFS047
TFS040	TFS048	TFS048
TFS041	TFS049	TFS049
TFS042	TFS050	TFS050
TFS043	TFS051	TFS051
TFS044	TFS052	TFS052
TFS045	TFS053	TFS053
TFS046	TFS054	TFS054
TFS047	TFS055	TFS055
		TFS056
		TFS057
TFS048	TFS056	TFS058
TFS049	TFS057	TFS059
TFS050	TFS058	TFS060
TFS051	TFS059	TFS061
TFS052	TFS060	TFS062
TFS053	TFS061	TFS063
TFS054	TFS062	TFS064
TFS055	TFS063	TFS065
TFS056	TFS064	TFS066
TFS057	TFS065	TFS067
TFS058	TFS066	TFS068
TFS059	TFS067	TFS069
TFS060	TFS068	TFS070
TFS061	TFS069	TFS071
TFS062	TFS070	TFS072
TFS064	TFS071	TFS073
TFS065	TFS072	TFS074
TFS066	TFS073	TFS075
TFS067	TFS074	TFS076
TFS068	TFS075	TFS077
TFS070	TFS076	TFS078
TFS063	TFS077	TFS079
TFS071	TFS078	TFS080
TFS072	TFS079	TFS081
TFS073	TFS080	TFS082
TFS074	TFS081	TFS083
TFS075	TFS082	TFS084
TFS069	TFS083	TFS085
TFS076	TFS084	TFS086
	TFS085	TFS087
TFS082	TFS086	TFS088
TFS077	TFS087	TFS089
		TFS090
TFS078	TFS088	TFS091
TFS079	TFS089	TFS092
TFS080	TFS090	TFS093
TFS081	TFS091	TFS094
	TFS093	TFS095
	TFS094	TFS096
	TFS095	TFS097
	TFS096	TFS098
	TFS097	TFS099

NOTE: If there is a blank variable name for 1988-89, 1991-92, or 1994-95, that particular item was not asked in that year.

Current Teachers Questionnaire (TFS 3)

1988-89 Variable name	1991-92 Variable name	1994-95 Variable name
	TFS003	TFS002
	TFS002	TFS003
	TFS106	TFS090
		TFS092
		TFS093
TFS104	TFS104	TFS094
		TFS095
TFS105	TFS105	TFS096
TFS107	TFS107	TFS107
TFS108	TFS108	TFS108
TFS109	TFS109	TFS109
TFS110	TFS110	TFS110
TFS111	TFS111	TFS111
TFS112	TFS112	TFS112
TFS113	TFS113	TFS113
TFS114	TFS114	TFS114
TFS115	TFS115	TFS115
TFS116	TFS116	TFS116
		TFS117
TFS117	TFS117	
TFS118	TFS118	TFS118
TFS119	TFS119	TFS119
		TFS120
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NOTE: If there is a blank variable name for 1988-89, 1991-92, or 1994-95, that particular item was not asked in that year.

Appendix D

Industry and Occupation Codes

Appendix D. 1990 Census of Population - Industry and Occupation Codes PRIVATE

These codes were used to classify the entries in item 3 (description of new job) of the Questionnaire for Former Teachers (TFS-2).

INDUSTRY CLASSIFICATIONS

AGRICULTURE, FORESTRY, AND FISHERIES

010 Agricultural production - crops
011 Agricultural production - livestock
012 Veterinary services
020 Landscape and horticultural services
030 Agricultural services - not elsewhere classified
031 Forestry
032 Fishing, hunting, and trapping

MINING

040 Metal mining
041 Coal mining
042 Oil and gas extraction
050 Nonmetallic mining and quarrying, except fuel

CONSTRUCTION

060 Construction

MANUFACTURING - NONDURABLE GOODS

Food and Kindred Products

100 Meat products
101 Dairy products
102 Canned, frozen, and preserved fruits and vegetables
110 Grain mill products
111 Bakery products
112 Sugar and confectionery products
120 Beverage industries
121 Miscellaneous food preparations and kindred products
122 Unspecified food industries

Tobacco Products

130 Tobacco manufactures

Textile Mill Products

132 Knitting mills
140 Dyeing and finishing textiles, except wool and knit goods
141 Carpets and rugs
142 Yarn, thread, and fabric mills
150 Miscellaneous textile mill products

Apparel and Other Finished Textile Products

151 Apparel and accessories, except knit
152 Miscellaneous fabricated textile products

Paper and Allied Products

160 Pulp, paper, and paperboard mills
161 Miscellaneous paper and pulp products
162 Paperboard containers and boxes

Printing, Publishing, and Allied Industries

171 Newspaper publishing and printing
172 Printing, publishing, and allied industries, except newspapers

Chemicals and Allied Products

180 Plastics, synthetics, and resins
181 Drugs
182 Soaps and cosmetics
190 Paints, varnishes, and related products
191 Agricultural chemicals
192 Industrial and miscellaneous chemicals

Petroleum and Coal Products

200 Petroleum refining
201 Miscellaneous petroleum and coal products

Rubber and Miscellaneous Plastic Products

210 Tires and inner tubes
211 Other rubber products, plastic footwear and belting
212 Miscellaneous plastic products

Leather and Leather Products

220 Leather tanning and finishing
221 Footwear, except rubber and plastic
222 Leather products, except footwear

MANUFACTURING - DURABLE GOODS

Lumber and Wood Products, Except Furniture

230 Logging
231 Sawmills, planing mills, and millwork
232 Wood buildings and mobile homes
241 Miscellaneous wood products

Furniture

242 Furniture and fixtures

Stone, Clay, Glass, and Concrete Products

250 Glass and glass products
251 Cement, concrete, gypsum, and plaster products

252 Structural clay products
261 Pottery and related products
262 Miscellaneous nonmetallic mineral and stone products

Metal Industries

270 Blast furnaces, steelworks, rolling and finishing mills
271 Iron and steel foundries
272 Primary aluminum industries
280 Other primary metal industries
281 Cutlery, hand tools, and general hardware
282 Fabricated structural metal products
290 Screw machine products
291 Metal forgings and stampings
292 Ordnance
300 Miscellaneous fabricated metal products
301 Unspecified metal industries

Machinery and Computing Equipment

310 Engines and turbines
311 Farm machinery and equipment
312 Construction and material-handling machines
320 Metalworking machinery
321 Office and accounting machines
322 Computers and related equipment
331 Machinery not elsewhere classified, except electrical
332 Unspecified machinery

Electrical Machinery, Equipment, and Supplies

340 Household appliances
341 Radio, television, and communication equipment
342 Electrical machinery, equipment, and supplies - not elsewhere classified
350 Unspecified electrical machinery, equipment, and supplies
Transportation Equipment
351 Motor vehicles and motor vehicle equipment
352 Aircraft and parts
360 Ship and boat building and repairing
361 Railroad locomotives and equipment
362 Guided missiles, space vehicles, and parts
370 Cycles and miscellaneous transportation equipment

Professional and Photographic Equipment, and Watches

371 Scientific and controlling instruments
372 Medical, dental, and optical instruments and supplies
380 Photographic equipment and supplies
381 Watches, clocks, and clockwork-operated devices

Toys, Amusement, and Sporting Goods

390 Toys, amusement, and sporting goods

MISCELLANEOUS MANUFACTURING INDUSTRIES

391 Miscellaneous manufacturing industries
392 Unspecified manufacturing industries

TRANSPORTATION, COMMUNICATIONS, AND OTHER PUBLIC UTILITIES

Transportation

400 Railroads
401 Bus service and urban transit
402 Taxicab service
410 Trucking service
411 Warehousing and storage
412 U.S. Postal Service
420 Water transportation
421 Air transportation
422 Pipe lines, except natural gas
432 Services incidental to transportation

Communications

440 Radio and television broadcasting and cable
441 Telephone communications
442 Telegraph and miscellaneous communication services

Utilities and Sanitary Services

450 Electric light and power
451 Gas and steam supply systems
452 Electric and gas, and other combinations
470 Water supply and irrigation
471 Sanitary services
472 Unspecified utilities

WHOLESALE TRADE

Durable Goods

500 Motor vehicles and equipment
501 Furniture and home furnishings
502 Lumber and construction materials
510 Professional and commercial equipment and supplies
511 Metals and minerals, except petroleum
512 Electrical goods
521 Hardware, plumbing and heating supplies
530 Machinery, equipment, and supplies
531 Scrap and waste materials
532 Miscellaneous wholesale trade - durable goods

Nondurable Goods

540 Paper and paper products
541 Drugs, chemicals, and allied products
542 Apparel, fabrics, and notions
550 Groceries and related products
551 Farm-product raw materials
552 Petroleum products
560 Alcoholic beverages
561 Farm supplies
562 Miscellaneous wholesale trade - nondurable goods
571 Unspecified wholesale trade

RETAIL TRADE

580 Lumber and building material retailing
581 Hardware stores
582 Retail nurseries and garden stores
590 Mobile home dealers
591 Department stores
592 Variety stores
600 Miscellaneous general merchandise stores
601 Grocery stores
602 Dairy products stores
610 Retail bakeries
611 Food stores - not elsewhere classified
612 Motor vehicle dealers
620 Auto and home supply stores
621 Gasoline service stations
622 Miscellaneous vehicle dealers
623 Apparel and accessory stores, except shoes
630 Shoe stores
631 Furniture and home furnishings stores
632 Household appliance stores
633 Radio, television, and computer stores
640 Music stores
641 Eating and drinking places
642 Drug stores
650 Liquor stores
651 Sporting goods, bicycles, and hobby stores
652 Book and stationery stores
660 Jewelry stores
661 Gift, novelty, and souvenir shops
662 Sewing, needlework, and piece goods stores
663 Catalog and mail order houses
670 Vending machine operators
671 Direct-selling establishments
672 Fuel dealers
681 Retail florists
682 Miscellaneous retail stores
691 Unspecified retail trade

FINANCE, INSURANCE, AND REAL ESTATE

700 Banking
701 Savings institutions, including credit unions
702 Credit agencies - not elsewhere classified
710 Security, commodity brokerage, and investment companies
711 Insurance
712 Real estate, including real estate-insurance offices

BUSINESS AND REPAIR SERVICES

721 Advertising
722 Services to dwellings and other buildings
731 Personnel supply services
732 Computer and data processing services
740 Detective and protective services
741 Business services - not elsewhere classified
742 Automotive rental and leasing, without drivers
750 Automotive parking and carwashes
751 Automotive repair and related services
752 Electrical repair shops
760 Miscellaneous repair services

PERSONAL SERVICES

761 Private households
762 Hotels and motels
770 Lodging places, except hotels and motels
771 Laundry, cleaning, and garment services
772 Beauty shops
780 Barber shops
781 Funeral service and crematories
782 Shoe repair shops
790 Dressmaking shops
791 Miscellaneous personal services

ENTERTAINMENT AND RECREATION SERVICES

800 Theaters and motion pictures
801 Video tape rental
802 Bowling centers
810 Miscellaneous entertainment and recreation services

PROFESSIONAL AND RELATED SERVICES

812 Offices and clinics of physicians
820 Offices and clinics of dentists
821 Offices and clinics of chiropractors
822 Offices and clinics of optometrists
830 Offices and clinics of health practitioners - not elsewhere classified
831 Hospitals
832 Nursing and personal care facilities
840 Health services - not elsewhere classified
841 Legal services
842 Elementary and secondary schools
850 Colleges and universities
851 Vocational schools
852 Libraries
860 Educational services - not elsewhere classified
861 Job training and vocational rehabilitation services
862 Child day-care services
863 Family child-care homes
870 Residential care facilities, without nursing
871 Social services - not elsewhere classified
872 Museums, art galleries, and zoos
873 Labor unions
880 Religious organizations
881 Membership organizations - not elsewhere classified
882 Engineering, architectural, and surveying services
890 Accounting, auditing, and bookkeeping services
891 Research, development, and testing services
892 Management and public relations services
893 Miscellaneous professional and related services

PUBLIC ADMINISTRATION

900 Executive and legislative offices
901 General government - not elsewhere classified
910 Justice, public order, and safety
921 Public finance, taxation, and monetary policy
922 Administration of human resources programs

930 Administration of environmental quality and housing programs
931 Administration of economic programs
932 National security and international affairs

ARMED FORCES

940 Army
941 Air Force
942 Navy
950 Marines
951 Coast Guard
952 Armed Forces - branch not specified
960 Military Reserves or National Guard

OCCUPATION CLASSIFICATIONS

EXECUTIVE, ADMINISTRATIVE, AND MANAGERIAL OCCUPATIONS

003 Legislators
004 Chief executives and general administrators - public administration
005 Administrators and officials - public administration
006 Administrators - protective services
007 Financial managers
008 Personnel and labor relations managers
009 Purchasing managers
013 Managers - marketing, advertising, and public relations
014 Administrators - education and related fields
015 Managers - medicine and health
016 Postmasters and mail superintendents
017 Managers - food-serving and lodging establishments
018 Managers - properties and real estate
019 Funeral directors
021 Managers - service organizations not elsewhere classified
022 Managers and administrators - not elsewhere classified

Management-related Occupations

023 Accountants and auditors
024 Underwriters
025 Other financial officers
026 Management analysts
027 Personnel, training, and labor relations specialists
028 Purchasing agents and buyers - farm products
029 Buyers - wholesale and retail trade, except farm products
033 Purchasing agents and buyers - not elsewhere classified
034 Business and promotion agents
035 Construction inspectors
036 Inspectors and compliance officers, except construction
037 Management-related occupations - not elsewhere classified

PROFESSIONAL SPECIALTY OCCUPATIONS

Architects, Engineers, and Surveyors

043 Architects, except naval architects

Engineers
044 Aerospace engineers
045 Metallurgical and materials engineers

046 Mining engineers
047 Petroleum engineers
048 Chemical engineers
049 Nuclear engineers
053 Civil engineers
054 Agricultural engineers
055 Electrical and electronic engineers
056 Industrial engineers
057 Mechanical engineers
058 Marine engineers and naval architects
059 Engineers - not elsewhere classified
063 Surveyors and mapping scientists

Mathematical and Computer Scientists

064 Computer systems analysts and scientists
065 Operations and systems researchers and analysts
066 Actuaries
067 Statisticians
068 Mathematical scientists - not elsewhere classified

Natural Scientists

069 Physicists and astronomers
073 Chemists, except biochemists
074 Atmospheric and space scientists
075 Geologists and geodesists
076 Physical scientists - not elsewhere classified
077 Agricultural and food scientists
078 Biological and life scientists
079 Forestry and conservation scientists
083 Medical scientists

Health Diagnosing Occupations

084 Physicians
085 Dentists
086 Veterinarians
087 Optometrists
088 Podiatrists
089 Health diagnosing practitioners - not elsewhere classified

Health Assessment and Treating Occupations

095 Registered nurses
096 Pharmacists
097 Dietitians

Therapists
098 Respiratory therapists
099 Occupational therapists
103 Physical therapists
104 Speech therapists
105 Therapists - not elsewhere classified
106 Physicians' assistants

Teachers - Postsecondary

113 Earth, environmental, and marine science teachers
114 Biological science teachers

115 Chemistry teachers
116 Physics teachers
117 Natural science teachers - not elsewhere classified
118 Psychology teachers
119 Economics teachers
123 History teachers
124 Political science teachers
125 Sociology teachers
126 Social science teachers - not elsewhere classified
127 Engineering teachers
128 Mathematical science teachers
129 Computer science teachers
133 Medical science teachers
134 Health specialties teachers
135 Business, commerce, and marketing teachers
136 Agriculture and forestry teachers
137 Art, drama, and music teachers
138 Physical education teachers
139 Education teachers
143 English teachers
144 Foreign language teachers
145 Law teachers
146 Social work teachers
147 Theology teachers
148 Trade and industrial teachers
149 Home economics teachers
153 Postsecondary teachers - not elsewhere classified
154 Postsecondary teachers - subject not specified

Teachers, Except Postsecondary

155 Teachers - prekindergarten and kindergarten, except special education
156 Teachers - elementary school, except prekindergarten, kindergarten, and special education
157 Teachers - secondary school, except special education
158 Teachers - special education
159 Teachers - not elsewhere classified

Counselors - Educational and Vocational

163 Counselors - educational and vocational

Librarians, Archivists, and Curators

164 Librarians
165 Archivists and curators

Social Scientists and Urban Planners

166 Economists
167 Psychologists
168 Sociologists
169 Social scientists - not elsewhere classified
173 Urban planners

Social, Recreation, and Religious Workers

174 Social workers
175 Recreation workers

176 Clergy
177 Religious workers - not elsewhere classified

Lawyers and Judges

178 Lawyers
179 Judges

Writers, Artists, Entertainers, and Athletes

183 Authors
184 Technical writers
185 Designers
186 Musicians and composers
187 Actors and directors
188 Painters, sculptors, craft artists, and artist printmakers

Writers, Artists, Entertainers, and Athletes, continued

189 Photographers
193 Dancers
194 Artists, performers, and related workers - not elsewhere classified
195 Editors and reporters
197 Public relations specialists
198 Announcers
199 Athletes

TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS

Health Technologists and Technicians

203 Clinical laboratory technologists and technicians
204 Dental hygienists
205 Health record technologists and technicians
206 Radiologic technicians
207 Licensed practical nurses
208 Health technologists and technicians - not elsewhere classified

Technologists and Technicians, Except Health

Engineering and related technologists and technicians
213 Electrical and electronic technicians
214 Industrial engineering technicians
215 Mechanical engineering technicians
216 Engineering technicians - not elsewhere classified
217 Drafting occupations
218 Surveying and mapping technicians

Science technicians
223 Biological technicians
224 Chemical technicians
225 Science technicians - not elsewhere classified

Technicians, except health, engineering, and science
226 Airplane pilots and navigators
227 Air traffic controllers
228 Broadcast equipment operators
229 Computer programmers
233 Tool programmers, numerical control

234 Legal assistants
235 Technicians - not elsewhere classified

Sales Occupations

243 Supervisors and proprietors - sales occupations

Sales representatives - finance and business services
253 Insurance sales occupations
254 Real estate sales occupations
255 Securities and financial services sales occupations
256 Advertising and related sales occupations
257 Sales occupations - other business services

Sales representatives - commodities, except retail
258 Sales engineers
259 Sales representatives - mining, manufacturing, and wholesale

Sales workers - retail and personal services
263 Sales workers - motor vehicles and boats
264 Sales workers - apparel
265 Sales workers - shoes
266 Sales workers - furniture and home furnishings
267 Sales workers - radio, television, hi-fi, and appliances
268 Sales workers - hardware and building supplies
269 Sales workers - parts
274 Sales workers - other commodities
275 Sales counter clerks
276 Cashiers
277 Street and door-to-door sales workers
278 News vendors

Sales-related occupations
283 Demonstrators, promoters and models - sales
284 Auctioneers
285 Sales support occupations - not elsewhere classified

Administrative Support Occupations, Including Clerical

Supervisors - administrative support occupations
303 Supervisors - general office
304 Supervisors - computer equipment operators
305 Supervisors, financial records processing
306 Chief communications operators
307 Supervisors - distribution, scheduling, and adjusting clerks

Computer equipment operators
308 Computer operators
309 Peripheral equipment operators

Secretaries, stenographers, and typists
313 Secretaries
314 Stenographers
315 Typists

Information clerks
316 Interviewers
317 Hotel clerks
318 Transportation ticket and reservation agents
319 Receptionists

323 Information clerks - not elsewhere classified

Records-processing occupations, except financial
325 Classified-ad clerks
326 Correspondence clerks
327 Order clerks
328 Personnel clerks, except payroll and timekeeping
329 Library clerks
335 File clerks
336 Records clerks

Financial records processing occupations
337 Bookkeepers, accounting, and auditing clerks
338 Payroll and timekeeping clerks
339 Billing clerks
343 Cost and rate clerks
344 Billing, posting, and calculating machine operators

Duplicating, mail and other office machine operators
345 Duplicating machine operators
346 Mail-preparing and paper-handling machine operators
347 Office machine operators - not elsewhere classified

Communications equipment operators
348 Telephone operators
353 Communications equipment operators - not elsewhere classified

Mail and message distributing occupations
354 Postal clerks, except mail carriers
355 Mail carriers - postal service
356 Mail clerks, except postal service
357 Messengers

Other material-recording, scheduling, and distributing clerks
359 Dispatchers
363 Production coordinators
364 Traffic, shipping, and receiving clerks
365 Stock and inventory clerks
366 Meter readers
368 Weighers, measurers, checkers, and samplers
373 Expediters
374 Material-recording, scheduling, and distributing clerks - not elsewhere classified

Adjusters and investigators
375 Insurance adjusters, examiners, and investigators
376 Investigators and adjusters, except insurance
377 Eligibility clerks - social welfare
378 Bill and account collectors

Miscellaneous administrative support occupations
379 General office clerks
383 Bank tellers
384 Proofreaders
385 Data-entry keyers
386 Statistical clerks
387 Teachers' aides
389 Administrative support occupations - not elsewhere classified

SERVICE OCCUPATIONS

Private Household Occupations

403 Launderers and ironers
404 Cooks - private household
405 Housekeepers and butlers
406 Child-care workers - private household
407 Private household cleaners and servants

Protective Service Occupations

Supervisors - protective service occupations
413 Supervisors - firefighting and fire prevention occupations
414 Supervisors - police and detectives
415 Supervisors - guards

Firefighting and fire prevention occupations
416 Fire inspection and fire prevention occupations
417 Firefighting occupations

Police and detectives
418 Police and detectives - public service
423 Sheriffs, bailiffs, and other law enforcement officers
424 Correctional institution officers

Guards
425 Crossing guards
426 Guards and police, except public service
427 Protective service occupations - not elsewhere classified

Service Occupations, Except Protective and Private Household

Food preparation and service occupations
433 Supervisors - food preparation and service occupations
434 Bartenders
435 Waiters and waitresses
436 Cooks
438 Food counter, fountain and related occupations
439 Kitchen workers - food preparation
443 Waiters'/waitresses' assistants
444 Miscellaneous food preparation occupations

Health service occupations
445 Dental assistants
446 Health aides, except nursing
447 Nursing aides, orderlies, and attendants

Cleaning and building-service occupations, except private household
448 Supervisors - cleaning and building-service workers
449 Maids and housemen
453 Janitors and cleaners
454 Elevator operators
455 Pest control occupations

Personal service occupations
456 Supervisors - personal service occupations
457 Barbers
458 Hairdressers and cosmetologists
459 Attendants - amusement and recreation facilities

461 Guides
462 Ushers
463 Public transportation attendants
464 Baggage porters and bellhops
465 Welfare service aides
466 Family child-care providers
467 Early childhood teacher's assistants
468 Child-care workers - not elsewhere classified
469 Personal service occupations - not elsewhere classified

FARMING, FORESTRY, AND FISHING OCCUPATIONS

Farm Operators and Managers

473 Farmers, except horticultural
474 Horticultural specialty farmers
475 Managers - farms, except horticultural
476 Managers - horticultural specialty farms

Other Agricultural and Related Occupations

Farm occupations, except managers and operators
477 Supervisors - farm workers
479 Farm workers
483 Marine-life cultivation workers
484 Nursery workers

Related agricultural occupations
485 Supervisors - related agricultural occupations
486 Groundskeepers and gardeners, except farm
487 Animal caretakers, except farm
488 Graders and sorters - agricultural products
489 Inspectors - agricultural products

Forestry and logging occupations
494 Supervisors - forestry and logging workers
495 Forestry workers, except logging
496 Timber cutting and logging occupations

Fishers, hunters, and trappers
497 Captains and other officers - fishing vessels
498 Fishers
499 Hunters and trappers

PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS

Mechanics and Repairers

503 Supervisors - mechanics and repairers

Mechanics and repairers, except supervisors

Vehicle and mobile equipment mechanics and repairers
505 Automobile mechanics
506 Automobile mechanic apprentices
507 Bus, truck, and stationary engine mechanics
508 Aircraft engine mechanics
509 Small engine repairers
514 Automobile body and related repairers
515 Aircraft mechanics, except engine

516 Heavy equipment mechanics
517 Farm equipment mechanics
518 Industrial machinery repairers
519 Machinery maintenance occupations

Electrical and electronic equipment repairers
523 Electronic repairers- communications and industrial equipment
525 Data processing equipment repairers
526 Household appliance and power tool repairers
527 Telephone line installers and repairers
529 Telephone installers and repairers
533 Miscellaneous electrical and electronic equipment repairers
534 Heating, air conditioning, and refrigeration mechanics

Miscellaneous mechanics and repairers
535 Camera, watch, and musical instrument repairers
536 Locksmiths and safe repairers
538 Office machine repairers
539 Mechanical controls and valve repairers
543 Elevator installers and repairers
544 Millwrights
547 Specified mechanics and repairers - not elsewhere classified
549 Unspecified mechanics and repairers

Construction Trades

Supervisors - construction occupations
553 Supervisors - brickmasons, stonemasons, and tile setters
554 Supervisors - carpenters and related workers
555 Supervisors - electricians and power-transmission installers (6014)
556 Supervisors - painters, paperhangers, and plasterers
557 Supervisors - plumbers, pipefitters, and steamfitters
558 Construction supervisors - not elsewhere classified

Construction trades, except supervisors
563 Brickmasons and stonemasons
564 Brickmason and stonemason apprentices
565 Tile setters - hard and soft
566 Carpet installers
567 Carpenters
569 Carpenter apprentices
573 Drywall installers
575 Electricians
576 Electrician apprentices
577 Electrical power installers and repairers
579 Painters - construction and maintenance
583 Paperhangers
584 Plasterers
585 Plumbers, pipefitters, and steamfitters
587 Plumber, pipefitter, and steamfitter apprentices
588 Concrete and terrazzo finishers
589 Glaziers
593 Insulation workers
594 Paving, surfacing, and tamping equipment operators
595 Roofers
596 Sheetmetal duct installers
597 Structural metal workers
598 Drillers - earth
599 Construction trades - not elsewhere classified

Extractive Occupations

613 Supervisors - extractive occupations
614 Drillers - oil well
615 Explosives workers
616 Mining machine operators
617 Mining occupations - not elsewhere classified

Precision Production Occupations

628 Supervisors - production occupations

Precision metalworking occupations
634 Tool and die makers
635 Tool and die maker apprentices
636 Precision assemblers - metal
637 Machinists
639 Machinist apprentices
643 Boilermakers
644 Precision grinders, filers, and tool sharpeners
645 Patternmakers and model makers - metal
646 Layout workers
647 Precious stones and metals workers (jewelers)
649 Engravers - metal
653 Sheet metal workers
654 Sheet metal worker apprentices
655 Miscellaneous precision metalworkers

Precision woodworking occupations
656 Patternmakers and model makers - wood
657 Cabinetmakers and bench carpenters
658 Furniture and wood finishers
659 Miscellaneous precision woodworkers

Precision textile, apparel, and furnishings machine workers
666 Dressmakers
667 Tailors
668 Upholsterers
669 Shoe repairers
674 Miscellaneous precision apparel and fabric workers

Precision workers - assorted materials
675 Hand molders and shapers, except jewelers
676 Patternmakers, layout workers, and cutters
677 Optical goods workers
678 Dental laboratory and medical appliance technicians
679 Bookbinders
683 Electrical and electronic equipment assemblers
684 Miscellaneous precision workers - not elsewhere classified

Precision food production occupations
686 Butchers and meat cutters
687 Bakers
688 Food batchmakers

Precision inspectors, testers, and related workers
689 Inspectors, testers, and graders
693 Adjusters and calibrators

Plant and System Operators

694 Water and sewage-treatment plant operators
695 Power plant operators
696 Stationary engineers
699 Miscellaneous plant and system operators

OPERATORS, FABRICATORS, AND LABORERS

Machine Operators, Assemblers, and Inspectors

Machine operators and tenders, except precision

Metalworking and plasticworking machine operators
703 Lathe and turning machine setup operators
704 Lathe and turning machine operators
705 Milling and planing machine operators
706 Punching and stamping press machine operators
707 Rolling machine operators
708 Drilling and boring machine operators
709 Grinding, abrading, buffing, and polishing machine operators
713 Forging machine operators
714 Numerical control machine operators
715 Miscellaneous metal, plastic, stone, and glass working machine operators
717 Fabricating machine operators - not elsewhere classified

Metal and plastic processing machine operators
719 Molding and casting machine operators
723 Metal plating machine operators
724 Heat treating equipment operators
725 Miscellaneous metal and plastic processing machine operators

Woodworking machine operators
726 Wood lathe, routing, and planing machine operators
727 Sawing machine operators
728 Shaping and joining machine operators
729 Nailing and tacking machine operators
733 Miscellaneous woodworking machine operators

Printing machine operators
734 Printing press operators
735 Photoengravers and lithographers
736 Typesetters and compositors
737 Miscellaneous printing machine operators

Textile, apparel, and furnishings machine operators
738 Winding and twisting machine operators
739 Knitting, looping, taping, and weaving machine operators
743 Textile cutting machine operators
744 Textile sewing machine operators
745 Shoe machine operators
747 Pressing machine operators
748 Laundering and dry cleaning machine operators
749 Miscellaneous textile machine operators

Machine operators - assorted materials
753 Cementing and gluing machine operators
754 Packaging and filling machine operators
755 Extruding and forming machine operators
756 Mixing and blending machine operators

757 Separating, filtering, and clarifying machine operators
758 Compressing and compacting machine operators
759 Painting and paint spraying machine operators
763 Roasting and baking machine operators - food
764 Washing, cleaning, and pickling machine operators
765 Folding machine operators
766 Furnace, kiln, and oven operators, except food
768 Crushing and grinding machine operators
769 Slicing and cutting machine operators
773 Motion picture projectionists
774 Photographic process machine operators
777 Miscellaneous machine operators - not elsewhere classified
779 Machine operators, not specified

Fabricators, assemblers, and handworking occupations

783 Welders and cutters
784 Solderers and brazers
785 Assemblers
786 Hand cutting and trimming occupations
787 Hand molding, casting, and forming occupations
789 Hand painting, coating, and decorating occupations
793 Hand engraving and printing occupations
795 Miscellaneous handworking occupations

Production inspectors, testers, samplers, and weighers
796 Production inspectors, checkers, and examiners
797 Production testers
798 Production samplers and weighers
799 Graders and sorters, except agricultural

Transportation and Material-moving Occupations

Motor vehicle operators
803 Supervisors - motor vehicle operators
804 Truck drivers
806 Driver-sales workers
808 Bus drivers
809 Taxicab drivers and chauffeurs
813 Parking lot attendants
814 Motor transportation occupations - not elsewhere classified

Transportation occupations, except motor vehicles

Rail transportation occupations
823 Railroad conductors and yardmasters
824 Locomotive operating occupations
825 Railroad brake, signal, and switch operators
826 Rail vehicle operators - not elsewhere classified

Water transportation occupations
828 Ship captains and mates, except fishing boats
829 Sailors and deckhands
833 Marine engineers
834 Bridge, lock, and lighthouse tenders

Material-moving equipment operators

843 Supervisors - material-moving equipment operators
844 Operating engineers

845 Longshore equipment operators
848 Hoist and winch operators
849 Crane and tower operators
853 Excavating and loading machine operators
855 Grader, dozer, and scraper operators
856 Industrial truck and tractor equipment operators
859 Miscellaneous material-moving equipment operators

Handlers, Equipment Cleaners, Helpers, and Laborers - Not Elsewhere Classified

864 Supervisors - handlers, equipment cleaners, and laborers - not elsewhere classified
865 Helpers - mechanics and repairers

Helpers - construction and extractive occupations
866 Helpers - construction trades
867 Helpers - surveyor
868 Helpers - extractive occupations
869 Construction laborers
874 Production helpers

Freight, stock, and material handlers
875 Garbage collectors
876 Stevedores
877 Stock handlers and baggers
878 Machine feeders and offbearers
883 Freight, stock, and material handlers - not elsewhere classified
885 Garage and service station related occupations
887 Vehicle washers and equipment cleaners
888 Hand packers and packagers
889 Laborers, except construction

ARMED FORCES

903 Commissioned officers and warrant officers
904 Noncommissioned officers and other enlisted personnel
905 Military occupation - rank not specified