Characteristics of
Los Angeles County Social Survey 1992

Principal Investigator:	Lawrence Bobo, Ph.D.
Sample:	Random Digit Dial (RDD) sample of all telephone households in Los Angeles county, and RDD oversamples of African American and Asian American telephone households in Los Angeles county.
Respondent Selection:	Person 18 years old or over who has the next birthday and is currently living in the household.
Field Period:	February 3 through July 28, 1992
Number of Interviews:	1897
Interviews by Ethnicity:	White ..... 625 African American ..... 483 Latino ..... 477 Asian American ..... 284 Other 28
Average Interview Length:	38 minutes
Main Topics:	Ethnic relations; social dominance; social distance; immigration; affirmative action; and employment.
Language:	English and Spanish
Methodological Components:	1) Split ballot -- Respondents were randomly selected to answer a series of questions from one of three ballots concerning immigration and affirmative action; 2) Social distance questions -- a different series of social distance questions was asked depending on the respondent's ethnicity.
Interviewing Mode:	Computer-Assisted Telephone Interviewing (CATI) System
Report Prepared By:	Michael T. Greenwell

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INTRODUCTION

The Los Angeles County Social Survey (LACSS) is part of a continuing annual research project supported by the Institute for Social Science Research at the University of California, Los Angeles (UCLA). The primary purpose of the Los Angeles County Social Survey is to provide UCLA and the local community with information about the opinions and attitudes of Los Angeles County residents on a wide range of topics. The LACSS also provides UCLA undergraduate and graduate students with the experience of collecting survey research data. Each year a University of California researcher is given an opportunity to be principal investigator and to use a segment of the LACSS for his or her own research. The 1992 principal investigator was Dr. Lawrence Bobo, who is Associate Professor of Sociology at UCLA.

This year's annual Los Angeles County Social Survey was conducted between February and July of 1992. Los Angeles County residents were asked questions concerning ethnic relations, immigration, employment, and government. A random digit dial sample of telephone households in Los Angeles county was called, and interviews were completed with 1897 adult respondents. These respondents were selected in a two-stage process. First, telephone households were randomly selected. Then, one adult from each eligible household was selected to do an interview. In addition, an oversample of African American and Asian American telephone households was drawn from areas in Los Angeles county. The response rate for this survey is 45 percent. The margin of error for any given question is plus or minus 3 percentage points.

COMPUTER-ASSISTED STUDIES

Introduction

Computer-Assisted Studies (CAS), the Survey Research Center's CATI facility, was established in 1975. CAS is part of the Survey Research Center within the Institute for Social Science Research at the University of California, Los Angeles. Even though CAS's main activity is computer-based telephone interviewing, it also provides UCLA researchers with staff and resources to conduct computer simulation experiments.

Over the past 25 years, CAS has played an important role in telephone survey research. CAS staff have conducted some of the first surveys using a computer-based telephone interviewing system, and they assisted in conducting the first large state-wide survey using CATI. Other important contributions of CAS staff include regularly conducting bilingual surveys, and conducting an annual survey of Los Angeles area residents. Moreover, CAS staff have conducted hundreds of surveys, and conduct more interviews per year than most university-based CATI facilities.

The CAS originated from a collective effort between the directors of the Institute for Social Science Research (ISSR) and the Center for Computer-Based Behavioral Studies (CCBS). Dr. Gerald Shure, director of CCBS, had developed a computer-based interactive system for psychology experiments and analysis and was using the CCBS facility to conduct simulation experiments. At this time, Dr. Howard Freeman, director of ISSR, was interested in applying computer technology to telephone interviewing. Together, with their initiative, experience, and foresight, they were able to bring some of the first practical applications of computer-based telephone interviewing to university survey research.

With funds from the Russell Sage Foundation, a small survey was conducted using a CATI prototype in 1975. Shortly after developing this successful CATI prototype, National Science Foundation funds were obtained to further develop and evaluate the CATI system. To this end, researchers from UC Berkeley and UCLA came together in 1977 to develop a CATI system that would be used for a large California telephone survey. Through this ground-breaking survey, a CATI system was developed that would serve CAS for more than 15 years. Members of this collaborative effort went on to other organizations to create new CATI software and to set up CATI systems in survey facilities. Quite fittingly, CAS now uses CASES, a CATI system originally created at UC Berkeley by researchers who were key members in developing the ISSR/CCBS CATI system at UCLA.

The Telephone Interviewing Facility

The Computer-Assisted Studies facility has 16 telephone interviewing stations. Ten of these stations are fully enclosed rooms, each containing a computer terminal and a telephone with headset. The other 6 interviewing stations are in 3 enclosed rooms, with 2 interviewing stations in each room. Each interviewing telephone is connected to an audio monitor so that a supervisor can monitor interviewer performance. Each computer terminal is connected to a visual monitoring screen located in the supervisors' office. The supervisors' monitor does not carry a full image of the interviewer's screen. However, it gives the monitor enough information so that he or she can effectively used the audio monitor. The visual monitor lets the supervisor know who is logged on to the computer, which question interviewers have reached in the survey instrument, how much time interviewers spend on each question, and how long they have been interviewing a particular respondent.

The SunSPARC Computer

The CAS facility operates a Stanford University Network (SUN) SPARC workstation with a UNIX-based operating system called SunOS. CAS's 16 interviewing terminals are connected to the SPARC system through an ANNEX IIE terminal server. The server processes work done on the Falco 5000 terminals located in the 16 interviewing stations. The SunOS allows CAS to conduct multiple surveys and simulation experiments simultaneously. This computer network provides CAS with powerful programming languages and 2.2 gigabytes of disk space.

The CATI System

CAS uses the CASES CATI system from the Computer-Assisted Methods Program (CSM) at the University of California, Berkeley. CASES is a comprehensive CATI package. It provides many programs for survey research including programs for building complex survey instruments, managing cases, coding text responses, and analyzing data.

SURVEY ADMINISTRATION

Interviewer Training

Interviewers were trained in the use of standard interviewing techniques and basic execution functions on the computer-assisted telephone interviewing (CATI) system. Interviewer training was comprehensive, including at least 12 hours of instruction and practice for each interviewer. This included six hours of classroom instruction in three two-hour sessions. The main topics of these sessions were as follows: (1) the telephone survey instrument, techniques for handling refusals at initial contact, and personnel policies; (2) standard interviewing techniques; and (3) the 1992 LACSS instrument. Figure 1 is a copy of the table of contents for the "Interviewer Training Guide."

The classroom instructions were followed by practical exercises in CATI commands and interviewing techniques. These practical application sessions were divided into two main parts: a CATI demonstration with exercises; and practice interviewing sessions using the 1992 LACSS CATI instrument. While in the practice sessions, interviewer trainees were expected to read questions aloud to themselves from the computer screen, and to role-play with another trainee. During the role-playing, each trainee acts as both a respondent and as an interviewer. In addition, each interviewer trainee interviewed a supervisor. Finally, a supervisor evaluated each interviewer trainee on how well he or she carried out CATI functions and used standard interviewing techniques before the trainee was allowed to call telephone numbers from the sample. Refer to Figure 2 for an outline of the "CATI Interviewer Training Guide."

After interviewer trainees were given approval by the supervisor to begin calling, supervisors would systematically monitor their performance at initial contact and during interviews. Supervisors use standard monitoring forms to record interviewer trainee performance, and give immediate feedback to interviewer trainees who need improvement. Refer to Figure 3 for a copy of the "Interviewer Monitoring Form" used by supervisors to evaluate interviewer performance. Also, interviewer trainees were instructed to immediately contact a supervisor when they accumulated at least three refusals in a single interviewing session.

Supervisors would evaluate each interviewer trainee's performance based on the following criteria: use of CATI commands and interviewing techniques through monitoring; completion and efficiency rates; note-taking style and completeness; and attendance and reliability. Interviewer performance was monitored and progress was charted throughout the course of the entire data collection period.

Interviewer Performance and Progress

When evaluating interviewer performance, it is important not only to evaluate how well each interviewer performs his or her tasks, but also to follow interviewer performance over the duration of the data collection period and intervene to ameliorate performance which does not meet expectations. In order to evaluate overall interviewer performance over an entire survey period, it is necessary to collect the results from several different evaluations of each interviewer's behavior, and record these results over time. Evaluating interviewer performance entails evaluating three main interviewer behaviors: interviewing skills, productivity, and cooperation and responsibility. Each interviewer is expected to competently use standard interviewing techniques and CATI functions, to complete an acceptable number of interviews in a reasonable amount of time, and to be a responsible and cooperative member of the data collection staff.

Interviewing skills are evaluated by a monitor listening to interviews and scoring interviewer behavior on a monitoring form. Interviewer productivity is evaluated by calculating interview completion and calling efficiency rates. Completion and efficiency rates are automatically calculated each day and presented in the form of a report. Interviewer cooperation and responsibility are evaluated mainly by monitoring interviewer attendance. The data used to evaluate these behaviors are taken from the monitoring form, reports of interview completion and calling efficiency rates, and an attendance form.

The monitoring form provides information about the interviewer's ability to use appropriate standard interviewing techniques and CATI functions. This information is an indicator of the quality of the interview, as well as of interviewer performance. The interview completion rate measures an interviewer's success in persuading respondents to complete interviews. This is calculated by dividing the number of interviews by the sum of interviews and refusals for each interviewer. The calling efficiency rate measures how well the interviewer uses his or her calling time. This is calculated by dividing an interviewer's interviewing time by his or her total calling time. The attendance form provides information about the interviewer's responsiveness to the scheduling needs of the survey.

Each evaluated behavior is given a grade that indicates how well an interviewer is performing a particular task. Grades are separated into positive categories so that interviewers can clearly see that they have an opportunity to improve their performance (when given an unsatisfactory grade). The grading categories used in evaluating interviewer performance are excellent, adequate, and unsatisfactory (needs improvement). In order to simplify the evaluation process, grade categories are incorporated into the following coding scheme:

S = results from the monitoring form

P = results from interview or efficiency rates

A = results from weekly attendance report

N = results from text for open-ended questions or other-specify responses

+ = excellent
0 = adequate
- = unsatisfactory (needs improvement)

For example, "S-" on the interviewer progress chart means that the results from the monitoring form were unsatisfactory, and that this interviewer needs to improve his or her interviewing techniques or execution of CATI commands.

After a supervisor evaluates an interviewer, then he or she records the graded task on the interviewer progress chart so that other supervisors can easily see how well interviewers are doing. Immediate feedback is given when the resulting grade for any task is "-"; that is, needs improvement. Supervisors review the progress chart daily to see how each interviewer is progressing over the course of the survey period. If an interviewer is not performing up to expectations, then the supervisor works with this interviewer to improve his or her performance.

During the first week of calling, immediately after training, supervisors closely monitor each interviewer's completion rate to see how successful he or she is at persuading respondents to complete an interview. If at any time, an interviewer records more refusals than interviews, then a supervisor intervenes and attempts to identify the problem. In addition, interviewers are instructed to immediately notify a supervisor when they receive three refusals during a single interviewing session.

Shortly after all interviewers enter production (i.e., begin calling regular sample), supervisors must adjust to this change by shifting their main activities from training interviewers (in CATI commands, interviewing techniques, and personnel procedures) to monitoring and evaluating interviewer performance, and giving corrective and positive feedback to interviewers. During this next phase of supervising, supervisors are expected to keep the interviewer progress chart up to date. Supervisors are expected to review and process reports, monitor and evaluate interviewer performance, and give feedback and encouragement to interviewers.

Data Collection Staff

A total of 83 interviewers completed interviews for this survey, including 59 undergraduate students and 24 professional interviewers. The supervisory staff included 3 supervisors from the professional staff and 3 graduate students who spent most of their time monitoring interviewers. Professional interviewers completed 1326 interviews, or 70 percent of the total number of interviews. Undergraduate students only interviewed for six weeks, and they completed a total of 569 interviews.

After the data collection period, an attempt was made to obtain interviewer ethnicity. By that time it was summer vacation and most of the undergraduate students had moved or changed their telephone numbers. Consequently, interviewer ethnicity was obtained from only 31 of the 83 interviewers. Of these 31 interviewers, it was determined that 13 were white, 7 were African American, 6 were Latino, and 5 were Asian American. White interviewers completed 638 interviews, African American interviewers completed 206 interviews, Latino interviewers completed 292 interviews, and Asian American interviewers completed 165 interviews.

Interviewing Days and Times

Interviewers were scheduled 7 days a week. The following schedule represents the maximum range of days and hours scheduled.

Monday through Thursday	12:00 noon to 9:00 p.m.
Friday	3:00 p.m. to 6:00 p.m.
Saturday	11:00 a.m. to 4:00 p.m.
Sunday	11:00 a.m. to 5:00 p.m.

The interviewing schedule changed over the course of the data collection period according to student interviewer schedules and workload needs.

Calling Protocols

Potential household cases introduced into the sample were called a minimum number of times before they were assigned a final disposition code. Non-working numbers, businesses, and other non-household cases, by contrast, were quickly given final codes and taken out of the calling process. Household and potential household numbers were called until they were either completed or called a specific number of times. The protocols for active potential interviews are as follows:

- A no-contact case is defined as a case where no one ever answered the telephone. These no-contact cases included no answer, busy, and answering machine dispositions. Each no-contact case was called a minimum of twelve times on different days of the week and times of day before it was given a final disposition code.

- At least three call back appointments were arranged with someone, and the call backs were made at the appointed times, before a case would be considered for finalization. Multiple call backs would usually be given a final disposition code of persistently unavailable. However, after reading interviewer notes, some multiple call back cases were finalized as refusals. Before a case would be considered for finalization, it was called back a minimum of six times and maximum of thirty times.

- Cases resulting in a refusal were called back again unless the refusal was firm or hostile (firmness of refusal was evaluated by supervisors based on criteria given to them during training). Cases with a final disposition of disconnected or not-in-service were confirmed by calling the telephone number again.

- An average of approximately 9 calls were made to each potential household number, excluding business and non-working numbers.

SAMPLING PROCEDURES

Sampling Design

The purpose of this study was to survey a representative sample of adults in Los Angeles county. The study was also designed to sample subpopulations disproportionately to insure that a sufficient number of interviews for analysis would be completed with African American, Latino, and Asian American respondents. This was accomplished by drawing oversamples from areas with high concentrations of African American and Asian American telephone households. As a result, telephone numbers from these oversamples had a disproportionately better chance of being selected into the sample than those respondents living in telephone households outside the oversample areas. Disproportionate weighting of these cases was done to compensate for the differential sampling. A description of how this weighting was done can be found in the section called "Disproportionate Weighting." In the next section, the construction of the sampling frames for the general sample and oversamples are described.

Sampling Frames

The random digit dial (RDD) sample for this survey was purchased from Survey Sampling, Inc. (SSI). The RDD general sample was drawn from a three-stage stratified sampling frame. In the first stage of constructing the sampling frame, the number of telephone households in Los Angeles county was estimated. In the second stage, the telephone exchanges in the county were identified. In the third stage, working blocks of telephone numbers within each telephone exchange were identified. Finally, when these three stages were complete, two randomly-selected numbers were added to the last two digits of each selected working block of numbers. A specific number of cases was requested for the sample, based upon estimates of expected response and contact rates. A sample of this size was then randomly drawn from the sampling frame described above.

In addition to the general county-wide RDD sample described above, two RDD oversamples of African American and Asian American telephone households within Los Angeles county were introduced into the sample of numbers to be called. These oversamples were drawn by randomly selecting telephone household numbers from telephone exchanges in zip code areas that were estimated to have large percentages of African American and Asian American telephone households. Telephone exchange coverage of zip code areas with large concentrations of African American and Asian American telephone households was based on current information from Pacific Bell telephone company and from projections of 1980 Census tract data. The African American oversample was drawn from zip code areas that were estimated to have 65 percent or more African American telephone households. The Asian American oversample was

drawn from zip code areas that were estimated to have 30 percent or more Asian American telephone households. The total number of oversample numbers needed for each ethnic group was based on estimates of response rate, ethnic population density, and contact rate.

For each of these three subsamples (a single general and two oversamples), the total number of households in the sampling frame had to be estimated in order to calculate estimated selection probabilities. The total estimated telephone households for the general and oversample frames were projections based on 1980 Census tract information, since 1990 telephone household information was not available when the sampling frame was created. The resulting totals of estimated telephone households for each sampling frame is as follows: 2,826,216 telephone households for the general sample; 47,417 for the African American oversample; and 111,240 for the Asian American oversample. Though oversample exchanges overlap with the general sample, oversample exchanges are mutually exclusive with regard to each other; an exchange number from one oversample is not contained in another oversample.

Sample Management

Completed interview goals for each ethnic group were set prior to data collection. Interview goals were as follows:

White	625 interviews
African American	475 interviews
Latino	475 interviews
Asian American	225 interviews
Total	1800 interviews

The general sample was introduced into the data collection process first, and oversample numbers were not added until the completion goal for white respondents was within reach. Then, African American oversample numbers were introduced. Replicates (new, randomly-selected groups of telephone numbers within a particular sample type) of African American oversample telephone numbers were introduced until it could be estimated that the completion goal would be met using the standard calling protocols. A description of standard calling procedures can be found in the section called "Calling Protocols." Lastly, replicates of the Asian American oversample were introduced to meet the completion goal for Asian American respondents.

From this point on, no more telephone numbers were introduced into the sample. All remaining cases were called until the survey's standard calling procedures were completed for these cases. Latino oversample numbers were not needed because the completion goal for this group was reached during the course of calling numbers from other subsamples. After a completion goal for a specific ethnic group was reached, potential interviews from that

ethnic group were systematically screened out. Specifically, screened-out respondents were asked only four questions, including ethnicity, and these potential interviews were then automatically ended if respondents were from an ethnic group for which the completion goal had already been met.

The following figure shows the distribution of interviews within each ethnic group across each sample type.

Interviews by Ethnicity and Oversample

		Oversample		
	General	African American	Asian American	TOTAL
White	473	28	124	625
African American	80	403	0	483
Latino	232	126	119	477
Asian American	78	18	188	284
Other	7	2	8	17
DK	1	1	0	2
RF	1	7	1	9
TOTAL	872	585	440	1897

Disproportionate Weighting

Weights were used to compensate proportionally for differential selection probabilities. The weighting and normalizing procedure took basically three steps to complete. These steps involved estimating (1) a selection probability, (2) a relative weight, and (3) a normalized weight for each ethnic group within each sample type (hereafter "each ethnic group within each sample type" will be called "each sample group."). The first step was to calculate selection probabilities for each sample group, including the number of screened-out cases for each group. The second step was to calculate sample weights specific to each sample group so that each group would have a weight proportionate to the original number of interviews for that group. The third step was to calculate normalized weights so that the average interview would have the weight of one. This normalization was done so that the researchers could compute percentages accurately using a statistical package like SPSSX.

Selection Probability

When each telephone household does not have the same probability of selection, which was the case in this survey, it is necessary to calculate weights to adjust for the differential selection probabilities. This is done by first estimating selection probabilities for each sample group. The estimated selection probability for each sample group in this survey was calculated by using the following formula:

SAMPLE TYPE: General or Oversample
ETHNIC GROUP: White, African American, Latino, or Asian American and Other

$$\frac{\text{eligible households}}{\text{est. telephone households}} \times \frac{\text{interviews}}{\text{interviews + screens}}$$

For example:

SAMPLE TYPE -- General
ETHNIC GROUP -- Asian American, American Indian, and Other

$$\frac{2078}{2{,}826{,}216} \times \frac{87}{87 + 0} = .000735$$

Sample type -- General
Ethnic group -- African American

$$\frac{2078}{2{,}826{,}216} \times \frac{80}{80 + 24} = .000565$$

* no cases were screened-out from this sample group, hence screens equal zero.

After the selection probability for each sample group was estimated, the reciprocal of the selection probability was taken for each sample group. The reciprocal of the selection probability was taken so that relative weights for each sample group could be calculated. An example of such a reciprocal is:

SAMPLE TYPE -- General
ETHNIC GROUP -- African American

$$\frac{1}{.000565} = 1769.9115$$ (reciprocal of selection probability)

Relative Weights

After the reciprocal of the selection probability for each sample group was taken, a relative weight was assigned to each sample group. This relative weight for each sample group was calculated by first assigning the weight of 1 to the sample group with the highest reciprocal value (an arbitrary choice), and dividing the reciprocal value for each group by the highest reciprocal value among all the sample groups. For example, the reciprocal value for the Asian American/Other group in the general sample was 1360.5442 and the highest reciprocal value (for African American respondents in the general sample) was 1769.9115. Thus, the relative weight for the Asian American/Other group within the general sample was .7687 (1360.5442 divided by 1769.9115).

Normalized Weights

The next step was to normalize weights for all groups so that the average interview would have the weight of one. This was done by first multiplying the relative weight for each sample group by its total number of interviews. This produced a weighted total number of interviews for each sample group. The weighted group totals were then used to calculate an average weight for the entire sample as follows: the weighted group totals were summed across all sample groups, giving a total weighted number of interviews. This weighted total was then divided by the actual number of interviews, giving the overall average weight. In this case, 1897 completed interviews were divided by 778 weighted interviews. Hence, the overall average weight for this survey was 2.4383. Finally, a normalized weight for each sample group was calculated by multiplying the relative weight for each group by the overall average weight. This produced a normalized weight for each sample group. The normalized weights for sample groups are as follows:

Normalized Weights for Sample Groups

General Sample		African American Oversample		Asian American Oversample	
Asian/Other	1.8743	Asian/Other	.0392	Asian/Other	.0577
White	2.0257	White	.0504	White	.1470
Latino	2.1193	Latino	.0438	Latino	.2040
African Am.	2.4383	African Am.	.0658	*	

* No interviews were conducted with African American respondents in the Asian American oversample.

DATA COLLECTION

Survey Instrument

The instrument used in this survey included approximately 160 substantive questions per interview: approximately 80 core questions were taken from last year's survey; 80 new substantive questions were added; and 7 standard interview evaluation questions were added to the end of the instrument. The total number of different questions on the survey instrument, counting duplicate questions in split ballots and parallel branching, was over 250. The average length of an interview was 38 minutes. A 1992 LACSS questionnaire without frequency distributions is attached to this summary report.

Respondent Selection

Interviewers selected a respondent to interview by asking to speak with someone 18 years old or over currently living in the household who will have the next birthday. Using the "next birthday" method for selecting a respondent (the person to

interview) assumes that the interviewer speaks with a knowledgeable person. If the person answering the telephone is not a knowledgeable person, then the respondent is randomly selected from the number of adults in the household. This type of selection is done by using a chart of random numbers. For example, if there were 3 adults living in the household, the interviewer would assign each eligible adult a number, then select the respondent whose number appears first on the chart of random numbers. This procedure for randomly selecting a respondent was seldom used. The distribution by gender of respondents who completed an interview is 54.9 percent female and 45.1 percent male.

Productivity Figures

A total of 58,064 calls were made to complete 1897 interviews; that is, an average of 31 calls was made per completed interview. These calls were distributed among 10,400 cases. Of these 10,400 cases, 6259 could be considered as eligible or potentially eligible households. Hence, an average of approximately 9 calls were made to each potentially eligible telephone household, excluding business and non-working numbers.

The 1897 interviews are distributed in the following ways:

Interviews by Interviewer Type and Language

	Number of Interviews	Percentage
Interviewer Type		
Students	569	30%
Professional	1326	70
TOTAL	1895	100%
Language in which Latinos were Interviewed		
Spanish	265	56%
English	212	44
TOTAL	477	100%

Final Disposition Codes

After all the cases in the sample were called a sufficient number of times, every case was assigned a final disposition code. Most cases were automatically finalized during the course of data collection. However, some cases required that someone review the history of calls made and assign an appropriate final disposition code to each case. Figure 4 provides a list of final disposition codes and definitions. Figure 4 also shows the number of cases assigned to each final disposition code. Figure 5 provides a summary of those final codes and their totals. Final disposition codes are used to calculate cooperation and response rates, discussed below.

Codebook

A codebook was created using Conversational Survey Analysis program from the CASES CATI system. This comprehensive codebook is included as part of this summary report. For a detailed description of the codebook's contents, please refer to the introduction and table of contents of the attached codebook. Figure 6 is a description of the categories used to classify employed respondent's occupation and industry responses into numeric codes.

SURVEY RESPONSE AND SAMPLING STATISTICS

Cooperation Rate

After every case in the sample was assigned a final disposition code, cooperation and response rates were calculated. The cooperation rate is calculated by dividing the number of completed interviews by the sum of completed interviews plus refused cases. That is, given that an interviewer has someone on the telephone from an eligible household, the cooperation rate indicates how successful he or she was in obtaining an interview from that household. Unlike the response rate, the cooperation rate excludes callbacks from the denominator. As a result, the cooperation rate indicates how successful an interviewer is at conducting an interview with a case that results in either an interview or a refusal. Hence, the overall cooperation rate for the survey may offer some indication of how successful the interviewing staff was at persuading respondents to complete interviews. The cooperation rate for this survey was 55 percent.

Response Rate

The estimated response rate for this survey was 45 percent. A response rate is a way of evaluating data collection activities. The response rate can give the researcher an estimate of how successful the data collection effort was at conducting interviews with eligible telephone households in the sample. The response rate also gives the survey practitioner an estimate of how successful interviewers were at completing interviews with an eligible respondent from an eligible telephone household. The response rate calculation for this survey is as follows, with "CBs" indicating persistently unavailable call backs, "Refs" refusals, "Ill" that the respondent was too ill or incapable to complete an interview, and "away" that the respondent was away for the duration of the survey period:

$$\frac{\text{Interviews}}{(\text{Interviews} + \text{CBs.} + \text{Refs.} + \text{Ill} + \text{Away})} =$$

$$\frac{1897}{4188} = .4530$$

Margin of Error

The margin of error for this survey was plus or minus 3 percentage points, i.e., the chances are 95 in 100 that the value being estimated by the responses to any item lies within a range equal to the reported percentage plus or minus 3 percentage points. This estimated margin of error was taken from Table 14.1.I in Kish (1965, 576).

References

Kish, Leslie. 1965. Survey Sampling. New York: John Wiley & Sons.

FIGURE 1.

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FIGURE 2.

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Institute for Social Science Research
Survey Research Center
CATI Facility

CATI INTERVIEWER TRAINING GUIDE

Welcome and introduction to the ISSR/SRC

Survey Research Center

- Overview, background, and plans.
  - Relationship to other CATI facilities and research organizations across the country.
  - Relationship to the Institute and the University.
  - A summary of past SRC projects
  - SRC organizational structure
  - SRC computer, operating system, and CATI system.
  - Current schedule of surveys
  - Brief description of current projects
- Budgets, competition, and costs (operations and quality).
  - Interviewer's role in the SRC

Personnel policies and procedures

- Policies -- appearance, smoking, alcohol and drugs, breaks and lunch, shift hours, snacks, liquid containers, outside reading materials, and attendance.
- Procedures -- parking, sign-in sheet, bulletin board, mailbox, fire exits, earth-quake provisions, first-aid supplies, water, restrooms, call-station assignments, project assignments, availability sheets, schedules (posted and personalized), timesheets, pay periods, and pay checks.
- Job description
- Evaluations:
  - Personnel -- attendance, cooperation, reliability, and efficiency.
  - Performance -- monitoring, interview rate, call back rate, and refusal conversion rate.
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CATI INTERVIEWER TRAINING GUIDE (continued)

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    - Probes
    - Clarifications
    - Feedback
    - Practice interview with partner

- Refusal conversion techniques and exercises
  - Introduction worksheet
  - Introduction in interviewer's own words
  - Scripts and techniques for converting reluctant and intimidated respondents.
  - Note-taking style
  - Calling a refusal back

- Computer-assisted telephone interviewing
  - Summary of important CATI commands: entry level codes for closed-ended, open-ended, other specify, and range responses; and function level codes for jumping back to previously answered questions, changing an answer, noting a comment, setting a call back or a refusal, and sending a case to supervisorhold.
  - Front end of the instrument
    - verification of phone number, introduction and purpose of survey, persuasion (if needed), respondent selection, and screening.
  - Substantive part of the instrument
    - Questionnaire -- question form, question order, and response category form.

CATI INTERVIEWER TRAINING GUIDE (continued)

Characteristics of Current Survey(s)

Purpose of the survey
- Sponsor, completion goal, length, and timeline.

Sample type, area, and size.

Survey instrument (front end)
- Interviewer ID number
- Interviewer login and dialing instructions
- Introduction
- Respondent selection process
- Screening questions, if any.

Survey instrument (substantive)

Read through entire questionnaire and note:
- General ordering of questions
- Blocks and series of questions
- Open-ended questions
- Other specific questions
- Questions that may need probes and clarifications.
- Time references
- Ambiguous terms
- Special instructions

Application of CATI Commands and Interviewing Techniques

CATI interviewer training

A supervisor will instruct each interviewer how to go through a CATI instrument by showing them how to use CATI function keys. A supervisor also will assist the interviewer through a series of special CATI operations, including setting a call back, calling a call back, taking a note, setting a refusal, and sending a problem case to be held for a supervisor to review.

Practice interviewing

Each interviewer will read aloud a practice interview. Then the interviewer must conduct a practice interview with a supervisor.

Trainee evaluations

A supervisor must evaluate each interviewer trainee on his/her ability to use CATI interviewing operations and interviewing techniques. Each trainee must demonstrate that he/she can adequately carry out CATI functions and appropriately use standard interviewing techniques. A supervisor must approve each interviewer's performance, using a checklist of activities, before a trainee can begin to call telephone numbers in the sample.

FIGURE 3.

1/92

CATI MONITORING FORM

Interviewer Name: _____ Interviewer ID: _____
Study Name: _____ Project #: _____
Case #: _____ Monitor #: _____
Question begin/end: _____ Time begin/end: _____
Date: _____

	YES	NO/ITEM
INTRODUCTION		
Mentions name	[___]	[_____]
Mentions sponsorship	[___]	[_____]
Confirms number	[___]	[_____]
Establishes residence	[___]	[_____]
Selects appropriate respondent	[___]	[_____]
Mentions study's purpose	[___]	[_____]
Mentions confidentiality	[___]	[_____]
Has pleasant, positive approach	[___]	[_____]
Persuades when necessary	[___]	[_____]
Knowledgeable about study	[___]	[_____]
Expression in own words	[___]	[_____]
Maintains a continuous flow of expression ..... (does not pause too much)	[___]	[_____]
Expresses statements, not unnecessary questions	[___]	[_____]
QUESTIONNAIRE		
READING QUESTIONS AS WORDED		
Reads question(s) correctly	[___]	[_____]
Reads question(s) incorrectly, minor changes	[___]	[_____]
Reads question(s) with major changes	[___]	[_____]
PACE		
Reads question(s) at correct pace	[___]	[_____]
Reads question(s) too fast	[___]	[_____]
Reads question(s) too slow	[___]	[_____]
CLARIFICATIONS		
Provides definition(s)/clarification(s) correctly, does not provide personal definitions or interpretations	[___]	[_____]
Provides definition(s)/clarification(s) when necessary	[___]	[_____]

CATI MONITORING FORM (cont.)

	YES	NO/ITEM
PROBES		
Probes for more specific information, attempts to get clarity and direction	[___]	[_____]
Probes for more information when necessary	[___]	[_____]
Uses neutral probes	[___]	[_____]
REPEATING QUESTIONS		
Repeats question(s) correctly, does not make change	[___]	[_____]
Fails to repeat question(s) when necessary	[___]	[_____]
REPEATING RESPONSE CATEGORIES		
Repeats response categories correctly, does not make change, or does not leave out a category	[___]	[_____]
Repeats response categories when necessary	[___]	[_____]
FEEDBACK		
Delivers appropriate feedback, does not bias responses by expressing encouragement or dissatisfaction	[___]	[_____]
Delivers feedback regularly, but not all the time	[___]	[_____]
OVERALL CLARITY		
Pronounces words correctly, pronunciation does not lead to (possible) misinterpretation	[___]	[_____]
Reads item(s) in a normal and in an easy to understand manner (does not use inappropriate inflection or exaggerated emphasis, lacks intonation, or has monotone expression)	[___]	[_____]
NOTES		
Appropriate note taking style	[___]	[_____]
CATI FUNCTIONS AND COMMANDS		
Executes normal functions and commands correctly.....	[___]	[_____]

COMMENTS: _____

_____

_____

_____

_____

FEEDBACK GIVEN: _____

FIGURE 4.

Disposition of finalized cases by FNL values:

FNL	Description	Total
01	Completed interview	1897
02	Screen - No data	192
03	Screen - R.K. data only	756
04	Screen - R.K. data and data for preceeding questions	58
20	Refusal: residence not established	86
21	Refusal: respondent undetermined	535
22	Refusal by informant for respondent	98
23	Refusal by respondent	472
24	Respondent persistantly unavailable	566
25	Refusal - Firm Refusal by I (no conv. attempt)	269
26	Refusal - Firm Refusal by I for R (no conv. attempt)	20
27	Refusal - Firm Refusal by R (no conv. attempt)	56
29	Deny any such person at residence	0
30	Inaccessible: residence not established	0
31	Informant inaccessible	0
32	Respondent inaccessible, no longer at residence	25
33	Informant language barrier	64
34	Respondent language barrier	351
35	Respondent Deceased	1
36	Respondent incapacitated, too ill, disabled	94
37	Residents away for duration, on vacation, or moved	7
38	Respondent away for duration	48
40	No adults at this household	14
41	No adult citizens at this household	0
42	Business/Computer/Pay/Mobile phone/Fax	1146
43	Group quarters, nursing home, hospital	24
49	Other non-household	14
50	Non-working number	2871
51	Wrong connection or wrong number	60
52	Funny signal	4
53	No ring	0
60	Never answered (12 attempts)	401
61	Mechanical answering device (12 attempts)	168
62	Regular busy (12 attempts)	10
63	Two regular busies	0
64	Never answered/regular busy (12 attempts)	71
70	Circuit problems	3
71	Answering service	1
72	Temporarily not in service	4
73	Problems with the lines	0
74	Invalid interview	14

Total number of finalized cases = 10400

FIGURE 5.

1992
LOS ANGELES COUNTY SOCIAL SURVEY
FINAL OUTCOME CODES AND TOTALS
SUMMARY

TOTAL CASES IN SAMPLE = 10400

CONTACTS	OUTCOME	CODE	TOTAL
W/House-holds	Complete	(1)	1897
	Refusal	(20,21,22,23,25,26,27)	1536
	Language barrier	(33,34)	415
	Finalized household	(24,32,35,36,38)	734
	Other ineligible-household	(37,40)	21
	Invalid interview	(74)	14
	Screened interview	(2,3,4)	1006
		TOTAL	5623
Non-Households	Non-sample	(42,43,49,50,51,52,70,71,73)	4127
	No contact	(60,61,62,64)	650
		TOTAL	4777
		GRAND TOTAL	**10400**

equivalent numeric codes follow the alphabetic code. Either code may be used, depending on the processing method. Numbers in parentheses following the occupation categories are the 1980 Standard Occupational Classification code equivalents. The abbreviation "pt" means "part" and "n.e.c." means "not elsewhere classified."

Occupation code	Occupation category
	MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS
	Executive, Administrative, and Managerial Occupations
003	Legislators (111)
004	Chief executives and general administrators, public administration (112)
005	Administrators and officials, public administration (1132-1139)
006	Administrators, protective services (1131)
007	Financial managers (122)
008	Personnel and labor relations managers (123)
009	Purchasing managers (124)
013	Managers, marketing, advertising, and public relations (126)
014	Administrators, education and related fields (128)
015	Managers, medicine and health (131)
016	Managers, properties and real estate (1353)
017	Postmasters and mail superintendents (1344)
018	Funeral directors (pt 1359)
019	Managers and administrators, n.e.c. (121, 126, 127, 132-139, except 1344, 1353, pt 1359)
	Management related occupations
023	Accountants and auditors (1412)
024	Underwriters (1414)
025	Other financial officers (1415, 1419)
026	Management analysts (142)
027	Personnel, training, and labor relations specialists (143)
028	Purchasing agents and buyers, farm products (1443)
029	Buyers, wholesale and retail trade, except farm products (1442)
033	Purchasing agents and buyers, n.e.c. (1449)
034	Business and promotion agents (145)
035	Construction inspectors (1472)
036	Inspectors and compliance officers, exc. construction (1473)
037	Management related occupations, n.e.c. (149)
	Professional Specialty Occupations
	Engineers, architects, and surveyors
043	Architects (161)
	Engineers
044	Aerospace engineers (1622)
045	Metallurgical and materials engineers (1623)
46	Mining engineers (1624)
047	Petroleum engineers (1625)
048	Chemical engineers (1626)
049	Nuclear engineers (1627)
053	Civil engineers (1628)
054	Agricultural engineers (1632)
055	Electrical and electronic engineers (1633, 1636)
056	Industrial engineers (1634)
057	Mechanical engineers (1635)
058	Marine engineers and naval architects (1637)
059	Engineers, n.e.c. (1639)
063	Surveyors and mapping scientists (164)
	Mathematical and computer scientists
064	Computer systems analysts and scientists (171)
065	Operations and systems researchers and analysts (172)
066	Actuaries (1732)
067	Statisticians (1733)
068	Mathematical scientists, n.e.c. (1739)
	Natural scientists
069	Physicists and astronomers (1842, 1843)
073	Chemists, except biochemists (1845)
074	Atmospheric and space scientists (1846)
075	Geologists and geodesists (1847)
076	Physical scientists, n.e.c. (1849)
077	Agricultural and food scientists (1853)
078	Biological and life scientists (1854)
079	Forestry and conservation scientists (1852)
083	Medical scientists (1855)
	Health diagnosing occupations
084	Physicians (261)
085	Dentists (262)
086	Veterinarians (27)
087	Optometrists (281)
088	Podiatrists (283)
089	Health diagnosing practitioners, n.e.c. (289)
	Health assessment and treating occupations
095	Registered nurses (29)
096	Pharmacists (301)
097	Dietitians (302)
	Therapists
098	Inhalation therapists (3031)
099	Occupational therapists (3032)
103	Physical therapists (3033)
104	Speech therapists (3034)
105	Therapists, n.e.c. (3039)

Occupation code	Occupation category
	MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.
	Professional Specialty Occupations—Con.
	Health assessment and treating occupations—Con.
106	Physicians' assistants (304)
	Teachers, postsecondary
113	Earth, environmental, and marine science teachers (2212)
114	Biological science teachers (2213)
115	Chemistry teachers (2214)
116	Physics teachers (2215)
117	Natural science teachers, n.e.c. (2216)
118	Psychology teachers (2217)
119	Economics teachers (2218)
123	History teachers (2222)
124	Political science teachers (2223)
125	Sociology teachers (2224)
126	Social science teachers, n.e.c. (2225)
127	Engineering teachers (2226)
128	Mathematical science teachers (2227)
129	Computer science teachers (2228)
133	Medical science teachers (2231)
134	Health specialties teachers (2232)
135	Business, commerce, and marketing teachers (2233)
136	Agriculture and forestry teachers (2234)
137	Art, drama, and music teachers (2235)
138	Physical education teachers (2236)
139	Education teachers (2237)
143	English teachers (2238)
144	Foreign language teachers (2242)
145	Law teachers (2243)
146	Social work teachers (2244)
147	Theology teachers (2245)
148	Trade and industrial teachers (2246)
149	Home economics teachers (2247)
153	Teachers, postsecondary, n.e.c. (2249)
154	Postsecondary teachers, subject not specified
	Teachers, except postsecondary
155	Teachers, prekindergarten and kindergarten (231)
N (156)	Teachers, elementary school (232)
P (157)	Teachers, secondary school (233)
158	Teachers, special education (235)
159	Teachers, n.e.c. (236, 239)
163	Counselors, educational and vocational (24)
	Librarians, archivists, and curators
164	Librarians (251)
165	Archivists and curators (252)
	Social scientists and urban planners
166	Economists (1912)
167	Psychologists (1915)
168	Sociologists (1916)
169	Social scientists, n.e.c. (1913, 1914, 1919)
173	Urban planners (192)

Occupation code	Occupation category
	MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.
	Professional Specialty Occupations—Con.
	Social, recreation, and religious workers
174	Social workers (2032)
175	Recreation workers (2033)
176	Clergy (2042)
177	Religious workers, n.e.c. (2049)
	Lawyers and judges
178	Lawyers (211)
179	Judges (212)
	Writers, artists, entertainers, and athletes
183	Authors (321)
184	Technical writers (398)
185	Designers (322)
186	Musicians and composers (323)
187	Actors and directors (324)
188	Painters, sculptors, craft-artists, and artist printmakers (325)
189	Photographers (326)
193	Dancers (327)
194	Artists, performers, and related workers, n.e.c. (328, 329)
195	Editors and reporters (331)
197	Public relations specialists (332)
198	Announcers (333)
199	Athletes (34)
	TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS
	Technicians and Related Support Occupations
	Health technologists and technicians
203	Clinical laboratory technologists and technicians (362)
204	Dental hygienists (363)
205	Health record technologists and technicians (364)
206	Radiologic technicians (365)
207	Licensed practical nurses (366)
208	Health technologists and technicians, n.e.c. (369)
	Technologists and technicians, except health
	Engineering and related technologists and technicians
213	Electrical and electronic technicians (3711)
214	Industrial engineering technicians (3712)
215	Mechanical engineering technicians (3713)
216	Engineering technicians, n.e.c. (3719)
217	Drafting occupations (372)
218	Surveying and mapping technicians (373)
	Science technicians
223	Biological technicians (382)
224	Chemical technicians (3831)
225	Science technicians, n.e.c. (3832, 3833, 384, 389)

Occupation code	Occupation category
	TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.
	Technicians and Related Support Occupations—Con.
	Technicians, except health, engineering, and science
226	Airplane pilots and navigators (825)
227	Air traffic controllers (382)
228	Broadcast equipment operators (393)
229	Computer programmers (3971, 3972)
233	Tool programmers, numerical control (3974)
234	Legal assistants (396)
235	Technicians, n.e.c. (399)
	Sales Occupations
243	Supervisors and proprietors, sales occupations (40)
	Sales representatives, finance and business services
253	Insurance sales occupations (4122)
254	Real estate sales occupations (4123)
255	Securities and financial services sales occupations (4124)
256	Advertising and related sales occupations (4153)
257	Sales occupations, other business services (4152)
	Sales representatives, commodities except retail
258	Sales engineers (421)
259	Sales representatives, mining, manufacturing, and wholesale (423, 424)
	Sales workers, retail and personal services
263	Sales workers, motor vehicles and boats (4342, 4344)
264	Sales workers, apparel (4346)
265	Sales workers, shoes (4351)
266	Sales workers, furniture and home furnishings (4348)
267	Sales workers; radio, television, hi-fi, and appliances (4343, 4352)
268	Sales workers, hardware and building supplies (4353)
269	Sales workers, parts (4357)
274	Sales workers, other commodities (4345, 4347, 4354, 4356, 4359, 4362, 4369)
275	Sales counter clerks (4363)
Q (276)	Cashiers (4364)
277	Street and door-to-door sales workers (4366)
278	News vendors (4365)
	Sales related occupations
283	Demonstrators, promoters and models, sales (445)
284	Auctioneers (447)
285	Sales support occupations, n.e.c. (444, 446, 449)
	Administrative Support Occupations, Including Clerical
	Supervisors, administrative support occupations
303	Supervisors, general office (4511, 4513-4519, 4529)
304	Supervisors, computer equipment operators (4512)
305	Supervisors, financial records processing (4521)
306	Chief communications operators (4523)

Occupation code	Occupation category
	TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.
	Administrative Support Occupations, Including Clerical—Con.
	Supervisors, administrative support occupations—Con.
307	Supervisors; distribution, scheduling, and adjusting clerks (4522, 4524-4528)
	Computer equipment operators
308	Computer operators (4612)
309	Peripheral equipment operators (4613)
	Secretaries, stenographers, and typists
R (313)	Secretaries (4622)
314	Stenographers (4623)
315	Typists (4624)
	Information clerks
316	Interviewers (4642)
317	Hotel clerks (4643)
318	Transportation ticket and reservation agents (4644)
319	Receptionists (4645)
323	Information clerks, n.e.c. (4649)
	Records processing occupations, except financial
325	Classified-ad clerks (4662)
326	Correspondence clerks (4663)
327	Order clerks (4664)
328	Personnel clerks, except payroll and timekeeping (4692)
329	Library clerks (4694)
335	File clerks (4696)
336	Records clerks (4699)
	Financial records processing occupations
S (337)	Bookkeepers, accounting, and auditing clerks (4712)
338	Payroll and timekeeping clerks (4713)
339	Billing clerks (4715)
343	Cost and rate clerks (4716)
344	Billing, posting, and calculating machine operators (4718)
	Duplicating, mail and other office machine operators
345	Duplicating machine operators (4722)
346	Mail preparing and paper handling machine operators (4723)
347	Office machine operators, n.e.c. (4729)
	Communications equipment operators
348	Telephone operators (4732)
349	Telegraphers (4733)
353	Communications equipment operators, n.e.c. (4739)
	Mail and message distributing occupations
354	Postal clerks, exc. mail carriers (4742)
355	Mail carriers, postal service (4743)
356	Mail clerks, exc. postal service (4744)
357	Messengers (4745)
	Material recording, scheduling, and distributing clerks, n.e.c.
359	Dispatchers (4751)
363	Production coordinators (4752)

Occupation code	Occupation category
	TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.
	Administrative Support Occupations, Including Clerical—Con.
	Material recording, scheduling, and distributing clerks, n.e.c.—Con.
364	Traffic, shipping, and receiving clerks (4753)
365	Stock and inventory clerks (4754)
366	Meter readers (4755)
368	Weighers, measurers, and checkers (4756)
369	Samplers (4757)
373	Expediters (4758)
374	Material recording, scheduling, and distributing clerks, n.e.c. (4759)
	Adjusters and investigators
375	Insurance adjusters, examiners, and investigators (4782)
376	Investigators and adjusters, except insurance (4783)
377	Eligibility clerks, social welfare (4784)
378	Bill and account collectors (4786)
	Miscellaneous administrative support occupations
379	General office clerks (463)
383	Bank tellers (4791)
384	Proofreaders (4792)
385	Data-entry keyers (4793)
386	Statistical clerks (4794)
387	Teachers' aides (4795)
389	Administrative support occupations, n.e.c. (4787, 4799)
	SERVICE OCCUPATIONS
	Private Household Occupations
403	Launderers and ironers (503)
404	Cooks, private household (504)
405	Housekeepers and butlers (505)
406	Child care workers, private household (506)
T (407)	Private household cleaners and servants (502, 507, 509)
	Protective Service Occupations
	Supervisors, protective service occupations
413	Supervisors, firefighting and fire prevention occupations (5111)
414	Supervisors, police and detectives (5112)
415	Supervisors, guards (5113)
	Firefighting and fire prevention occupations
416	Fire inspection and fire prevention occupations (5122)
417	Firefighting occupations (5123)
	Police and detectives
418	Police and detectives, public service (5132)
423	Sheriffs, bailiffs, and other law enforcement officers (5134)
424	Correctional institution officers (5133)

Occupation code	Occupation category
	SERVICE OCCUPATIONS—Con.
	Protective Service Occupations—Con.
	Guards
425	Crossing guards (5142)
426	Guards and police, exc. public service (5144)
427	Protective service occupations, n.e.c. (5149)
	Service Occupations, Except Protective and Household
	Food preparation and service occupations
433	Supervisors, food preparation and service occupations (5211)
434	Bartenders (5212)
U (435)	Waiters and waitresses (5213)
436	Cooks, except short order (5214)
437	Short-order cooks (5215)
438	Food counter, fountain and related occupations (5216)
439	Kitchen workers, food preparation (5217)
443	Waiters'/waitresses' assistants (5218)
444	Miscellaneous food preparation occupations (5219)
	Health service occupations
445	Dental assistants (5232)
446	Health aides, except nursing (5233)
447	Nursing aides, orderlies, and attendants (5236)
	Cleaning and building service occupations, except household
448	Supervisors, cleaning and building service workers (5241)
449	Maids and housemen (5242, 5249)
V (453)	Janitors and cleaners (5244)
454	Elevator operators (5245)
455	Pest control occupations (5246)
	Personal service occupations
456	Supervisors, personal service occupations (5251)
457	Barbers (5252)
458	Hairdressers and cosmetologists (5253)
459	Attendants, amusement and recreation facilities (5254)
463	Guides (5255)
464	Ushers (5256)
465	Public transportation attendants (5257)
466	Baggage porters and bellhops (5262)
467	Welfare service aides (5263)
468	Child care workers, except private household (5264)
469	Personal service occupations, n.e.c. (5258, 5269)
	FARMING, FORESTRY, AND FISHING OCCUPATIONS
	Farm operators and managers
W (473)	Farmers, except horticultural (5512-5514)
474	Horticultural specialty farmers (5515)
475	Managers, farms, except horticultural (5522-5524)
476	Managers, horticultural specialty farms (5525)

Occupation code	Occupation category
	FARMING, FORESTRY, AND FISHING OCCUPATIONS—Con.
	Other agricultural and related occupations
	Farm occupations, except managerial
477	Supervisors, farm workers (5611)
479	Farm workers (5612-5617)
483	Marine life cultivation workers (5618)
484	Nursery workers (5619)
	Related agricultural occupations
485	Supervisors, related agricultural occupations (5621)
486	Groundskeepers and gardeners, except farm (5622)
487	Animal caretakers, except farm (5624)
488	Graders and sorters, agricultural products (5625)
489	Inspectors, agricultural products (5627)
	Forestry and logging occupations
494	Supervisors, forestry and logging workers (571)
495	Forestry workers, except logging (572)
496	Timber cutting and logging occupations (573, 579)
	Fishers, hunters, and trappers
497	Captains and other officers, fishing vessels (pt 8241)
498	Fishers (583)
499	Hunters and trappers (584)
	PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS
	Mechanics and repairers
503	Supervisors, mechanics and repairers (60)
	Mechanics and repairers, except supervisors
	Vehicle and mobile equipment mechanics and repairers
X (505)	Automobile mechanics (pt 6111)
506	Automobile mechanic apprentices (pt 6111)
507	Bus, truck, and stationary engine mechanics (6112)
508	Aircraft engine mechanics (6113)
509	Small engine repairers (6114)
514	Automobile body and related repairers (6115)
515	Aircraft mechanics, exc. engine (6116)
516	Heavy equipment mechanics (6117)
517	Farm equipment mechanics (6118)
518	Industrial machinery repairers (613)
519	Machinery maintenance occupations (614)
	Electrical and electronic equipment repairers
523	Electronic repairers, communications and industrial equipment (6151, 6153, 6155)
525	Data processing equipment repairers (6154)
526	Household appliance and power tool repairers (6156)
527	Telephone line installers and repairers (6157)
529	Telephone installers and repairers (6158)
533	Miscellaneous electrical and electronic equipment repairers (6152, 6159)
534	Heating, air conditioning, and refrigeration mechanics (616)

Occupation code	Occupation category
	PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.
	Mechanics and repairers—Con.
	Mechanics and repairers, except supervisors—Con.
	Miscellaneous mechanics and repairers
535	Camera, watch, and musical instrument repairers (6171, 6172)
536	Locksmiths and safe repairers (6173)
538	Office machine repairers (6174)
539	Mechanical controls and valve repairers (6175)
543	Elevator installers and repairers (6176)
544	Millwrights (6178)
547	Specified mechanics and repairers, n.e.c. (6177, 6179)
549	Not specified mechanics and repairers
	Construction trades
	Supervisors, construction occupations
553	Supervisors; brickmasons, stonemasons, and tile setters (6312)
554	Supervisors, carpenters and related workers (6313)
555	Supervisors, electricians and power transmission installers (6314)
556	Supervisors; painters, paperhangers, and plasterers (6315)
557	Supervisors; plumbers, pipefitters, and steamfitters (6316)
558	Supervisors, n.e.c. (6311, 6318)
	Construction trades, except supervisors
563	Brickmasons and stonemasons (pt 6412, pt 6413)
564	Brickmason and stonemason apprentices (pt 6412, pt 6413)
565	Tile setters, hard and soft (6414, pt 6462)
566	Carpet installers (pt 6462)
Y (567)	Carpenters (pt 6422)
569	Carpenter apprentices (pt 6422)
573	Drywall installers (6424)
575	Electricians (pt 6432)
576	Electrician apprentices (pt 6432)
577	Electrical power installers and repairers (6433)
579	Painters, construction and maintenance (6442)
583	Paperhangers (6443)
584	Plasterers (6444)
585	Plumbers, pipefitters, and steamfitters (pt 645)
587	Plumber, pipefitter, and steamfitter apprentices (pt 645)
588	Concrete and terrazzo finishers (6463)
589	Glaziers (6464)
593	Insulation workers (6465)
594	Paving, surfacing, and tamping equipment operators (6466)
595	Roofers (6468)
596	Sheetmetal duct installers (6472)
597	Structural metal workers (6473)
598	Drillers, earth (6474)

Occupation code	Occupation category
	PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.
	Construction trades—Con.
	Construction trades, except supervisors—Con.
599	Construction trades, n.e.c. (6467, 6475, 6476, 6479)
	Extractive occupations
613	Supervisors, extractive occupations (632)
614	Drillers, oil well (652)
615	Explosives workers (653)
616	Mining machine operators (654)
617	Mining occupations, n.e.c. (656)
	Precision production occupations
633	Supervisors, production occupations (67, 71)
	Precision metal working occupations
634	Tool and die makers (pt 6811)
635	Tool and die maker apprentices (pt 6811)
636	Precision assemblers, metal (6812)
637	Machinists (pt 6813)
639	Machinist apprentices (pt 6813)
643	Boilermakers (6814)
644	Precision grinders, fitters, and tool sharpeners (6815)
645	Patternmakers and model makers, metal (6817)
646	Lay-out workers (6821)
647	Precious stones and metals workers (jewelers) (6822, 6866)
649	Engravers, metal (6823)
653	Sheet metal workers (pt 6824)
654	Sheet metal worker apprentices (pt 6824)
655	Miscellaneous precision metal workers (6829)
	Precision woodworking occupations
656	Patternmakers and model makers, wood (6831)
657	Cabinet makers and bench carpenters (6832)
658	Furniture and wood finishers (6835)
659	Miscellaneous precision woodworkers (6839)
	Precision textile, apparel, and furnishings machine workers
666	Dressmakers (pt 6852, pt 7752)
667	Tailors (pt 6852)
668	Upholsterers (6853)
669	Shoe repairers (6854)
673	Apparel and fabric patternmakers (6856)
674	Miscellaneous precision apparel and fabric workers (6859, pt 7752)
	Precision workers, assorted materials
675	Hand molders and shapers, except jewelers (6861)
676	Patternmakers, lay-out workers, and cutters (6862)
677	Optical goods workers (6864, pt 7477, pt 7677)
678	Dental laboratory and medical appliance technicians (6865)
679	Bookbinders (6844)
683	Electrical and electronic equipment assemblers (6867)

Occupation code	Occupation category
	PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.
	Precision production occupations—Con.
	Precision workers, assorted materials—Con.
684	Miscellaneous precision workers, n.e.c. (6869)
	Precision food production occupations
686	Butchers and meat cutters (6871)
687	Bakers (6872)
688	Food batchmakers (6873, 6879)
	Precision inspectors, testers, and related workers
689	Inspectors, testers, and graders (6881, 828)
693	Adjusters and calibrators (6882)
	Plant and system operators
694	Water and sewage treatment plant operators (691)
695	Power plant operators (pt 693)
696	Stationary engineers (pt 693, 7668)
699	Miscellaneous plant and system operators (692, 694, 695, 696)
	OPERATORS, FABRICATORS, AND LABORERS
	Machine Operators, Assemblers, and Inspectors
	Machine operators and tenders, except precision
	Metalworking and plastic working machine operators
703	Lathe and turning machine set-up operators (7312)
704	Lathe and turning machine operators (7512)
705	Milling and planing machine operators (7313, 7513)
706	Punching and stamping press machine operators (7314, 7317, 7514, 7517)
707	Rolling machine operators (7316, 7516)
708	Drilling and boring machine operators (7318, 7518)
709	Grinding, abrading, buffing, and polishing machine operators (7322, 7324, 7522)
713	Forging machine operators (7319, 7519)
714	Numerical control machine operators (7326)
715	Miscellaneous metal, plastic, stone, and glass working machine operators (7329, 7529)
717	Fabricating machine operators, n.e.c. (7339, 7539)
	Metal and plastic processing machine operators
719	Molding and casting machine operators (7315, 7342, 7515, 7542)
723	Metal plating machine operators (7343, 7543)
724	Heat treating equipment operators (7344, 7544)
725	Miscellaneous metal and plastic processing machine operators (7349, 7549)
	Woodworking machine operators
726	Wood lathe, routing, and planing machine operators (7431, 7432, 7631, 7632)
727	Sawing machine operators (7433, 7633)
728	Shaping and joining machine operators (7435 7635)

Occupation	Occupation category
	OPERATORS, FABRICATORS, AND LABORERS—Con.
	Machine Operators, Assemblers, and Inspectors—Con.
	Machine operators and tenders, except precision—Con.
	Woodworking machine operators—Con.
729	Nailing and tacking machine operators (7636)
733	Miscellaneous woodworking machine operators (7434, 7439, 7634, 7639)
	Printing machine operators
734	Printing machine operators (7443, 7643)
735	Photoengravers and lithographers (6842, 7444, 7644)
736	Typesetters and compositors (6841, 7642)
737	Miscellaneous printing machine operators (6849, 7449, 7649)
	Textile, apparel, and furnishings machine operators
738	Winding and twisting machine operators (7451, 7651)
739	Knitting, looping, taping, and weaving machine operators (7452, 7652)
743	Textile cutting machine operators (7654)
744	Textile sewing machine operators (7655)
745	Shoe machine operators (7656)
747	Pressing machine operators (7657)
748	Laundering and dry cleaning machine operators (6855, 7658)
749	Miscellaneous textile machine operators (7459, 7659)
	Machine operators, assorted materials
753	Cementing and gluing machine operators (7661)
754	Packaging and filling machine operators (7462, 7662)
755	Extruding and forming machine operators (7463, 7663)
756	Mixing and blending machine operators (7664)
757	Separating, filtering, and clarifying machine operators (7476, 7666, 7676)
758	Compressing and compacting machine operators (7467, 7667)
759	Painting and paint spraying machine operators (7669)
763	Roasting and baking machine operators, food (7472, 7672)
764	Washing, cleaning, and pickling machine operators (7673)
765	Folding machine operators (7474, 7674)
766	Furnace, kiln, and oven operators, exc. food (7675)
768	Crushing and grinding machine operators (pt 7477, pt 7677)
769	Slicing and cutting machine operators (7478, 7678)
773	Motion picture projectionists (pt 7479)
774	Photographic process machine operators (6863, 6868, 7671)
777	Miscellaneous machine operators, n.e.c. (pt 7479, 7665, 7679)
779	Machine operators, not specified
	Fabricators, assemblers, and hand working occupations
783	Welders and cutters (7332, 7532, 7714)
784	Solderers and brazers (7333, 7533, 7717)
785	Assemblers (772, 774)
786	Hand cutting and trimming occupations (7753)
787	Hand molding, casting, and forming occupations (7754, 7755)
789	Hand painting, coating, and decorating occupations (7756)
793	Hand engraving and printing occupations (7757)
794	Hand grinding and polishing occupations (7758)
795	Miscellaneous hand working occupations (7759)
	Production inspectors, testers, samplers, and weighers
796	Production inspectors, checkers, and examiners (782, 787)
797	Production testers (783)
798	Production samplers and weighers (784)
799	Graders and sorters, except agricultural (785)
	Transportation and Material Moving Occupations
	Motor vehicle operators
803	Supervisors, motor vehicle operators (8111)
Z (804)	Truck drivers, heavy (8212, 8213)
805	Truck drivers, light (8214)
806	Driver-sales workers (8218)
808	Bus drivers (8215)
809	Taxicab drivers and chauffeurs (8216)
813	Parking lot attendants (874)
814	Motor transportation occupations, n.e.c. (8219)
	Transportation occupations, except motor vehicles
	Rail transportation occupations
823	Railroad conductors and yardmasters (8113)
824	Locomotive operating occupations (8232)
825	Railroad brake, signal, and switch operators (8233)
826	Rail vehicle operators, n.e.c. (8239)
	Water transportation occupations
828	Ship captains and mates, except fishing boats (pt 8241, 8242)
829	Sailors and deckhands (8243)
833	Marine engineers (8244)
834	Bridge, lock, and lighthouse tenders (8245)
	Material moving equipment operators
843	Supervisors, material moving equipment operators (812)
844	Operating engineers (8312)

Occupation code	Occupation category
	OPERATORS, FABRICATORS, AND LABORERS—Con.
	Transportation and Material Moving Occupations—Con.
	Material moving equipment operators—Con.
845	Longshore equipment operators (8313)
848	Hoist and winch operators (8314)
849	Crane and tower operators (8315)
853	Excavating and loading machine operators (8316)
855	Grader, dozer, and scraper operators (8317)
856	Industrial truck and tractor equipment operators (8318)
859	Miscellaneous material moving equipment operators (8319)
	Handlers, Equipment Cleaners, Helpers, and Laborers
863	Supervisors; handlers, equipment cleaners, and laborers, n.e.c. (85)
864	Helpers, mechanics and repairers (863)
	Helpers, construction and extractive occupations
865	Helpers, construction trades (8641-8645, 8648)
866	Helpers, surveyor (8646)
867	Helpers, extractive occupations (865)

Occupation code	Occupation category
	OPERATORS, FABRICATORS, AND LABORERS—Con.
	Handlers, Equipment Cleaners, Helpers, and Laborers—Con.
869	Construction laborers (871)
873	Production helpers (861, 862)
	Freight, stock, and material handlers
875	Garbage collectors (8722)
876	Stevedores (8723)
877	Stock handlers and baggers (8724)
878	Machine feeders and offbearers (8725)
883	Freight, stock, and material handlers, n.e.c. (8726)
885	Garage and service station related occupations (873)
887	Vehicle washers and equipment cleaners (875)
888	Hand packers and packagers (8761)
889	Laborers, except construction (8769)
999	OCCUPATION NOT REPORTED[1]

[1] Code used when not-reported cases are not allocated.

Equivalent numeric codes follow the alphabetic codes. Either code may be used, depending on the processing method. Numbers in parentheses following the industry categories are the SIC definitions. The abbreviation "pt" means "part" and "n.e.c." means "not elsewhere classified."

Industry code	Industry category
	AGRICULTURE, FORESTRY, AND FISHERIES
A (010)	Agricultural production, crops (01)
011	Agricultural production, livestock (02)
020	Agricultural services, except horticultural (07, except 078)
021	Horticultural services (078)
030	Forestry (08)
031	Fishing, hunting, and trapping (09)
	MINING
040	Metal mining (10)
041	Coal mining (11, 12)
042	Crude petroleum and natural gas extraction (13)
050	Nonmetallic mining and quarrying, except fuel (14)
B (060)	**CONSTRUCTION (15, 16, 17)**
	MANUFACTURING
	Nondurable Goods
	Food and kindred products
100	Meat products (201)
101	Dairy products (202)
102	Canned and preserved fruits and vegetables (203)
110	Grain mill products (204)
111	Bakery products (205)
112	Sugar and confectionery products (206)
120	Beverage industries (208)
121	Miscellaneous food preparations and kindred products (207, 209)
122	Not specified food industries
130	Tobacco manufactures (21)
	Textile mill products
132	Knitting mills (225)
140	Dyeing and finishing textiles, except wool and knit goods (226)
141	Floor coverings, except hard surface (227)
142	Yarn, thread, and fabric mills (228, 221-224)
150	Miscellaneous textile mill products (229)
	Apparel and other finished textile products
151	Apparel and accessories, except knit (231-238)
152	Miscellaneous fabricated textile products (239)

Industry code	Industry category
	MANUFACTURING—Con.
	Nondurable Goods—Con.
	Paper and allied products
160	Pulp, paper, and paperboard mills (261-263, 266)
161	Miscellaneous paper and pulp products (264)
162	Paperboard containers and boxes (265)
	Printing, publishing, and allied industries
C (171)	Newspaper publishing and printing (271)
172	Printing, publishing, and allied industries, except newspapers (272-279)
	Chemicals and allied products
180	Plastics, synthetics, and resins (282)
181	Drugs (283)
182	Soaps and cosmetics (284)
190	Paints, varnishes, and related products (285)
191	Agricultural chemicals (287)
192	Industrial and miscellaneous chemicals (281, 286, 289)
	Petroleum and coal products
200	Petroleum refining (291)
201	Miscellaneous petroleum and coal products (295, 299)
	Rubber and miscellaneous plastics products
210	Tires and inner tubes (301)
211	Other rubber products, and plastics footwear and belting (302-304, 306)
212	Miscellaneous plastics products (307)
	Leather and leather products
220	Leather tanning and finishing (311)
221	Footwear, except rubber and plastic (313, 314)
222	Leather products, except footwear (315-317, 319)
	Durable Goods
	Lumber and wood products, except furniture
230	Logging (241)
231	Sawmills, planing mills, and millwork (242, 243)
232	Wood buildings and mobile homes (245)
241	Miscellaneous wood products (244, 249)
242	Furniture and fixtures (25)
	Stone, clay, glass, and concrete products
250	Glass and glass products (321-323)
251	Cement, concrete, gypsum, and plaster products (324, 327)
252	Structural clay products (325)
261	Pottery and related products (326)
262	Miscellaneous nonmetallic mineral and stone products (328, 329)

Industry code	Industry category
	MANUFACTURING—Con.
	Durable Goods—Con.
	Metal industries
270	Blast furnaces, steelworks, rolling and finishing mills (331)
271	Iron and steel foundries (332)
272	Primary aluminum industries (3334, pt 334, 3353-3355, 3361)
280	Other primary metal industries (3331-3333, 3339, pt 334, 3351, 3356, 3357, 3362, 3369, 339)
281	Cutlery, hand tools, and other hardware (342)
282	Fabricated structural metal products (344)
290	Screw machine products (345)
291	Metal forgings and stampings (346)
292	Ordnance (348)
300	Miscellaneous fabricated metal products (341, 343, 347, 349)
301	Not specified metal industries
	Machinery, except electrical
310	Engines and turbines (351)
311	Farm machinery and equipment (352)
312	Construction and material handling machines (353)
320	Metalworking machinery (354)
321	Office and accounting machines (357, except 3573)
322	Electronic computing equipment (3573)
331	Machinery, except electrical, n.e.c. (355, 356, 358, 359)
332	Not specified machinery
	Electrical machinery, equipment, and supplies
340	Household appliances (363)
341	Radio, TV, and communication equipment (365, 366)
342	Electrical machinery, equipment, and supplies, n.e.c. (361, 362, 364, 367, 369)
350	Not specified electrical machinery, equipment, and supplies
	Transportation equipment
351	Motor vehicles and motor vehicle equipment (371)
352	Aircraft and parts (372)
360	Ship and boat building and repairing (373)
361	Railroad locomotives and equipment (374)
362	Guided missiles, space vehicles, and parts (376)
370	Cycles and miscellaneous transportation equipment (375, 379)
	Professional and photographic equipment, and watches
371	Scientific and controlling instruments (381, 382)
372	Optical and health services supplies (383, 384, 385)
380	Photographic equipment and supplies (386)
381	Watches, clocks, and clockwork operated devices (387)
382	Not specified professional equipment
390	Toys, amusement, and sporting goods (394)
391	Miscellaneous manufacturing industries (39 exc. 394)
392	Not specified manufacturing industries

Industry code	Industry category
	TRANSPORTATION, COMMUNICATIONS, AND OTHER PUBLIC UTILITIES
	Transportation
400	Railroads (40)
401	Bus service and urban transit (41, except 412)
402	Taxicab service (412)
410	Trucking service (421, 423)
411	Warehousing and storage (422)
412	U.S. Postal Service (43)
420	Water transportation (44)
421	Air transportation (45)
422	Pipe lines, except natural gas (46)
432	Services incidental to transportation (47)
	Communications
440	Radio and television broadcasting (483)
441	Telephone (wire and radio) (481)
442	Telegraph and miscellaneous communication services (482, 489)
	Utilities and sanitary services
460	Electric light and power (491)
461	Gas and steam supply systems (492, 496)
462	Electric and gas, and other combinations (493)
470	Water supply and irrigation (494, 497)
471	Sanitary services (495)
472	Not specified utilities
	WHOLESALE TRADE
	Durable Goods
500	Motor vehicles and equipment (501)
501	Furniture and home furnishings (502)
502	Lumber and construction materials (503)
510	Sporting goods, toys, and hobby goods (504)
511	Metals and minerals, except petroleum (505)
512	Electrical goods (506)
521	Hardware, plumbing and heating supplies (507)
522	Not specified electrical and hardware products
530	Machinery, equipment, and supplies (508)
531	Scrap and waste materials (5093)
532	Miscellaneous wholesale, durable goods (5094, 5099)
	Nondurable Goods
540	Paper and paper products (511)
541	Drugs, chemicals, and allied products (512, 516)
542	Apparel, fabrics, and notions (513)
550	Groceries and related products (514)
551	Farm products-raw materials (515)
552	Petroleum products (517)
560	Alcoholic beverages (518)
561	Farm supplies (5191)
562	Miscellaneous wholesale, nondurable goods (5194, 5198, 5199)
571	Not specified wholesale trade

Industry code	Industry category
	RETAIL TRADE
580	Lumber and building material retailing (521, 523)
581	Hardware stores (525)
582	Retail nurseries and garden stores (526)
590	Mobile home dealers (527)
D (591)	Department stores (531)
592	Variety stores (533)
600	Miscellaneous general merchandise stores (539)
E (601)	Grocery stores (541)
602	Dairy products stores (545)
610	Retail bakeries (546)
611	Food stores, n.e.c. (542, 543, 544, 549)
612	Motor vehicle dealers (551, 552)
620	Auto and home supply stores (553)
621	Gasoline service stations (554)
622	Miscellaneous vehicle dealers (555, 556, 557, 559)
630	Apparel and accessory stores, except shoe (56, except 566)
631	Shoe stores (566)
632	Furniture and home furnishings stores (571)
640	Household appliances, TV, and radio stores (572, 573)
F (641)	Eating and drinking places (58)
642	Drug stores (591)
650	Liquor stores (592)
651	Sporting goods, bicycles, and hobby stores (5941, 5945, 5946)
652	Book and stationery stores (5942, 5943)
660	Jewelry stores (5944)
661	Sewing, needlework, and piece goods stores (5949)
662	Mail order houses (5961)
670	Vending machine operators (5962)
671	Direct selling establishments (5963)
672	Fuel and ice dealers (598)
681	Retail florists (5992)
682	Miscellaneous retail stores (593, 5947, 5948, 5993, 5994, 5999)
691	Not specified retail trade
	FINANCE, INSURANCE, AND REAL ESTATE
8 (700)	Banking (60)
701	Savings and loan associations (612)
702	Credit agencies, n.e.c. (61, except 612)
710	Security, commodity brokerage, and investment companies (62, 67)
711 (711)	Insurance (63, 64)
712	Real estate, including real estate-insurance-law offices (65, 66)
	BUSINESS AND REPAIR SERVICES
721	Advertising (731)
722	Services to dwellings and other buildings (734)
730	Commercial research, development, and testing labs (7391, 7397)
731	Personnel supply services (736)
732	Business management and consulting services (7392)
740	Computer and data processing services (737)
741	Detective and protective services (7393)
742	Business services, n.e.c. (732, 733, 735, 7394, 7395, 7396, 7399)
750	Automotive services, except repair (751, 752, 754)
751	Automotive repair shops (753)
752	Electrical repair shops (762, 7694)
760	Miscellaneous repair services (763, 764, 7692, 7699)
	PERSONAL SERVICES
J (761)	Private households (88)
762	Hotels and motels (701)
770	Lodging places, except hotels and motels (702, 703, 704)
771	Laundry, cleaning, and garment services (721)
772	Beauty shops (723)
780	Barber shops (724)
781	Funeral service and crematories (726)
782	Shoe repair shops (725)
790	Dressmaking shops (pt 729)
791	Miscellaneous personal services (722, pt 729)
	ENTERTAINMENT AND RECREATION SERVICES
800	Theaters and motion pictures (78, 792)
801	Bowling alleys, billiard and pool parlors (793)
802	Miscellaneous entertainment and recreation services (791, 794, 799)
	PROFESSIONAL AND RELATED SERVICES
812	Offices of physicians (801, 803)
820	Offices of dentists (802)
821	Offices of chiropractors (8041)
822	Offices of optometrists (8042)
830	Offices of health practitioners, n.e.c. (8049)
K (831)	Hospitals (806)
832	Nursing and personal care facilities (805)
840	Health services, n.e.c. (807, 808, 809)
841	Legal services (81)
L (842)	Elementary and secondary schools (821)
M (850)	Colleges and universities (822)
851	Business, trade, and vocational schools (824)
852	Libraries (823)
860	Educational services, n.e.c. (829)
861	Job training and vocational rehabilitation services (833)
862	Child day care services (835)

Industry code	Industry category
	PROFESSIONAL AND RELATED SERVICES—Con.
870	Residential care facilities, without nursing (836)
871	Social services, n.e.c. (832, 839)
872	Museums, art galleries, and zoos (84)
880	Religious organizations (866)
881	Membership organizations (861-865, 869)
882	Engineering, architectural, and surveying services (891)
890	Accounting, auditing, and bookkeeping services (893)
891	Noncommercial educational and scientific research (892)
892	Miscellaneous professional and related services (899)
	PUBLIC ADMINISTRATION
900	Executive and legislative offices (911-913)
901	General government, n.e.c. (919)
910	Justice, public order, and safety (92)
921	Public finance, taxation, and monetary policy (93)
922	Administration of human resources programs (94)
930	Administration of environmental quality and housing programs (95)
931	Administration of economic programs (96)
932	National security and international affairs (97)
	PUBLIC ADMINISTRATION—Con.
990	**INDUSTRY NOT REPORTED**[1]

[1] Code used when not-reported cases are not allocated.