

B. Collections of Information Employing Statistical Methods

1. Universe and Respondent Selection

The ICTS covers employer companies in all private nonfarm sectors of the economy. For the survey, we use a stratified sample design. The entire company universe of more than 6.0 million companies is partitioned into two distinct non-overlapping categories.

Stratum	Description	Universe	Sample Size: Fiscal Year 2011
I	Companies with 500 employees or more	18,000	18,000
II	Companies with 1 to 499 employees	6.0 million	29,250
	Total Sample Size		47,250

We select a new sample annually. All companies defined in Stratum I in the new sample year are selected. Simple random samples of companies in Stratum II are selected every year.

By selecting a panel annually, we (1) redefine the universe of companies, and consequently the sample, to reflect the changing distribution of companies by industry and size, (2) give new and emerging companies representation in the sample on a more timely basis, and (3) relieve small companies from reporting for long periods of time.

We expect the response rate for the survey to be about 80 percent. Response rate is defined as the number of active, in-scope sample cases providing sufficient data to be considered a response divided by the total number of active, in-scope cases in the sample, times 100. Response has been relatively consistent over time.

2. Procedures for Collecting Information

a. Statistical Methodology for Stratification and Sample Selection

The Census Bureau's Business Register (BR) of employer businesses is used to develop the ICTS sampling frame for Strata I and II. The BR database contains records for each business entity with paid employees located in the United States, including company ownership information.

In creating the ICTS frame, establishment data in the BR are consolidated to create company level records. Employment and payroll information is maintained for each six-digit NAICS industry in which the company has activity. Next, payroll data for each company level record is run through an algorithm to assign the company, first to an industry sector (i.e., manufacturing, construction, *etc.*; two-digit NAICS code), then to a subsector (three-digit NAICS code), then to an industry group (four-digit NAICS code), then to an industry (five-digit NAICS code), and finally to an ICTS industry code. The resulting sampling frame contains more than 6.0 million companies.

For sampling purposes, the employer sampling frame is divided into five substrata. The first substratum includes all companies in Stratum I, *i.e.*, all companies with 500 employees or more. All 18,000 companies in this substratum are selected with certainty.

Stratum II, which consists of companies with 1 to 499 employees, is divided into four substrata. Each company in this noncertainty sampling frame is assigned to one of the four substrata based on ICTS industry and size of payroll. The stratification methodology we use minimizes the sample size subject to a desired level of reliability for each industry. Approximately 29,250 out of 6.0 million companies are selected in these four substrata. Since capitalized and non-capitalized expenditures data are not available in the sampling frame, the reliability levels for estimates in each industry are based on payroll and have an expected relative standard error ranging from 1 to 3 percent.

b. Estimation Procedures

Since the companies participating in the ICTS can respond for every industry in which they have activity, we generate estimates for each industry-by-stratum cell using a domains of study type estimator. Variances are calculated using a delete-a-group jackknife replicate variance estimator.

c. Degree of Accuracy Needed

Combined with capital expenditures data, the annual ICTS survey serves as a benchmark for ICT equipment expenditures and provides data to refine estimates for the national income and product accounts. These data uses require a high degree of reliability. The sample allocation is designed for minimum sampling variability by selecting high proportions of companies in strata thought to contribute the largest capitalized and non-capitalized ICT equipment expenditures.

d. Unusual Problems Requiring Specialized Sampling Procedures

There are no unusual problems requiring specialized sampling procedures.

Burden

e. Use of Periodic (less than annual) Data Collection Cycles to Reduce

There are no periodic data collection cycles less frequent than annual to reduce burden.

3. Methods to Maximize Response

a. Follow-up Procedures

We request that all companies return the ICTS form by April 15, approximately 30 days following the initial mailing. On or about May 8 and at 40-day intervals, companies that have not responded will receive either a letter and duplicate form or a telephone call according to the following pattern.

Follow-Up Pattern		
40-day interval following initial mailing	Stratum I companies	Stratum II companies
First	Letter	Letter
Second	Telephone or letter*	Letter
Third	Telephone or letter*	Telephone or letter*

* Companies designated as significant to an industry estimate are telephoned if they have not responded by the designated due date. All other companies not responding receive letters.

b. Estimating for Missing Data

To account for companies that do not respond, we adjust the sample weights of companies that do respond. These nonresponse weight adjustment factors are developed separately for each industry-by-stratum cell. The basis for the adjustment is the proportion of total company payroll accounted for by companies classified as respondents.

c. Reliability

The estimates for the survey will differ from the results of a census

conducted under similar conditions. Estimates of such differences or sampling errors are computed and published for all data items. Due to the skewness of capitalized and non-capitalized expenditures and the planned allocation of the sample, we expect the relative standard errors on the key items at the U.S. total level to be in the neighborhood of 1 to 2 percent. These estimates are based on results of relative standard errors from previous years' ICTS, which have been consistent with this expectation.

4. Testing of Procedures or Methods

We conducted exploratory and cognitive interview testing and based on the information we received, we made modifications to the ICTS procedures and methods, including refining the information collection instruments, instructions, and survey definitions. As we continue to receive feedback from respondents we will learn more about the variability of non-capitalized expenditures by size of company and industry. We will use such information to improve the design and allocation of the sample and utility of the survey.

5. Contacts for Statistical Aspects and Data Collection

Within the Company Statistics Division, Carol V. Caldwell, Assistant Division Chief for Research and Methodology, is responsible for directing the development of the sample designs, the estimation methodology, and the options for treating nonresponse. Ms. Caldwell can be reached on (301) 763-3390.

Valerie Strang, Chief of the Business Investment Branch, is responsible for directing the development of the survey content and the survey processing and for coordinating the survey design to meet the survey objectives. Ms. Strang can be reached on (301) 763-3317.

Attachments

- A. Report Forms
- B. Instructions
- C. Director's Letter / Follow-up Letters
- D. BEA Letter of Support