

## Supporting Statement

### Annual Capital Expenditures Survey (ACES) Forms ACE-1(S), ACE-1(M), ACE-1(L), and ACE-2

#### B. Collections of Information Employing Statistical Methods

##### 1. Universe and Respondent Selection

The ACES covers companies in all private nonfarm sectors of the economy, using a stratified simple random sample design. The universe of approximately 35.9 million companies is partitioned into three distinct non-overlapping categories.

Stratum	Description	Universe	Sample Size: Fiscal Year 2013
I	Companies with 500 or more employees	17.1 thousand	17,100
II	Companies with 1 to 499 employees	5.6 million	27,900
III	Nonemployer Companies	30.3 million	30,000
	Total Sample Size		75,000

A new sample is selected annually. All companies defined in universe stratum I are selected each year. Different stratified simple random samples of companies in strata II and III are selected from each stratum each year.

By selecting a sample 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 about a 70 percent the response rate for the survey. Response rate is defined as the ratio of the number of active, in-scope cases that provided a sufficient response divided by the total number of active, in-scope cases in the sample, times 100 percent. Response has been relatively consistent over time. However, the Total Quantity Response Rate, defined as the proportion of the published estimates coming from respondent data using only their original unadjusted-for-nonresponse sampling weights, is expected to be 85 percent.

##### 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 ACES employer sampling frame, 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 ACES 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 ACES industry code. The resulting sampling frame contains more than 5.6 million companies.

The employer sampling frame is divided into five substrata for sampling purposes. Stratum I consists of employer companies with 500 employees or more. All 17,100 companies in Stratum I are selected, or taken with certainty, in the sample.

Stratum II consists of employer companies with 1 to 499 employees. Each company in this non-certainty sampling frame is assigned to one of four substrata based on ACES industry and size of payroll. The stratification methodology we use minimizes the sample size subject to a desired level of reliability for each ACES industry. Approximately 27,900 out of 5.6 million companies are selected in Stratum II. Since capital 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 for sampling design purposes.

The nonemployer companies are selected from a database of business tax returns contained in the BR. These companies are selected using a simple random sample. Approximately 30,000 out of a universe of 30.3 million companies are selected in Stratum III.

b. Estimation Procedures

Since employer companies (Strata I and II) participating in the ACES can respond in all industries 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. Non-employer companies (Stratum III) participating in

the ACES respond for the company as a whole and do not provide industry detail. Estimates for non-employer companies are made using a simple weighted estimate at the substratum level that is then aggregated to achieve a Stratum III level estimate. Estimates for non-employer companies are made at the national aggregate level only (i.e., no industry level detail).

c. Degree of Accuracy Needed

The annual survey serves as a benchmark for current economic indicators 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 capital expenditures.

d. Unusual Problems Requiring Specialized Sampling Procedures

There are no unusual problems requiring specialized sampling procedures.

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

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

3. Methods to Maximize Response and Accounting for Nonresponse

a. Follow-up Procedures

We request that all companies return the ACES survey 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	Stratum III companies
First	Reminder Letter only	Reminder Letter only	Letter and duplicate form
Second	Reminder letter only if the company reported	Reminder letter only if the company reported	Letter and duplicate form.

	electronically for the 2012 ACES; all other companies will receive a letter and duplicate form.	electronically for the 2012 ACES; all other companies will receive a letter and duplicate form.*	
Third	Letter and duplicate form**	Letter and duplicate form**	Letter and duplicate form**

Two weeks prior to the Second Follow-up, all employer companies (Strata I and Strata II) will receive a letter and form is the response rate is significantly lower than the same time last year. If this mitigation strategy is implemented, then all these companies will receive a reminder letter rather than the duplicate form.

Companies designated as significant to an industry estimate are telephoned if they have not responded by the Designated due date.

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 size sampling stratum. For the employer segment (Strata I and II), the basis for the adjustment is the proportion of total company payroll accounted for by companies classified as respondents. For the non-employer segment (Stratum III), an adjustment is made for each substratum, and is the ratio of the substratum sample size to the number of substratum companies classified as respondents.

c. Reliability

The estimates for the survey differ from the results of a census conducted under similar conditions due to only measuring a subset of the population. Estimates of sampling errors are computed and published for all data items. Due to the skewness of capital expenditures and the planned allocation of the sample, we expect the relative standard errors on the key items at the U.S. total level for estimates of companies with employees to be in the neighborhood of 1 to 2 percent. These estimates are based on relative standard errors from previous years' ACES which have been consistent with this expectation.

4. Testing of Procedures or Methods

We conducted extensive testing and made modifications to the ACES procedures and methods resulting from the 1991 pilot and Response Analysis Survey, and the 1992 preliminary survey. Based on findings from the annual surveys since that time, we have continued to refine the information collection instruments, instructions, and survey definitions. We also continue to analyze data from the annual surveys to learn more about the variability of capital expenditures by size of company and industry. We use the information to improve the design and allocation of the sample and utility of the survey. We continue testing the use of existing Census Bureau Business Register information to represent new company births in the survey. We believe it is critical that new company births are represented in a timely manner because significant capital expenditures are made by businesses in their first years of existence. This research may lead to survey changes which will improve the representation of newly created businesses in the ACES.

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 non-response. Ms. Caldwell can be reached on (301) 763-3390.

Valerie Mastalski, 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. Mrs. Mastalski can be reached on (301) 763-3317.

Attachments

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