

## 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. We use a stratified sample design. The entire company universe of 31.3 million companies is partitioned into three distinct non-overlapping categories.

Stratum	Description	Universe	Sample Size: Fiscal Year 2008
I	Companies with 500 employees or more	17,000	17,000
II	Companies with 1 to 499 employees	5.9 million	29,000
III	Nonemployer Companies	25.4 million	15,000
	Total Sample Size		61,000

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 Strata II and III are selected from each stratum 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 76 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 ACES 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 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 5.9 million companies.

The employer sampling frame is divided into five substrata for sampling purposes. Stratum I consists of companies with 500 employees or more. All 17,000 companies in Stratum I are selected with certainty in the sample.

Stratum II consists of 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 29,000 out of 5.9 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.

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 15,000 out of a universe of 25.4 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 40 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	Letter	Letter	Letter
Second	Telephone or Letter*	Letter	Letter
Third	Telephone or Letter*	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 non-response weight adjustment factors are developed separately for each industry-by-stratum cell. 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. 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 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 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