

The Annual Capital Expenditures Survey (ACES) is a mandatory annual collection that provides the sole source of detailed comprehensive statistics on investment in buildings and other structures, machinery, and equipment by private nonfarm businesses in the United States.

ACES is a sample survey of approximately 50,000 companies with paid employees and 20,000 companies with no paid employees. Companies with 500 or more employees are included in the sample each year.

ACES data are collected at the company or firm level. A single NAICS code is assigned to the firm at the time of sampling based on their primary business activity.

The estimates are published at the national level and also by 2-digit NAICS sector and select 3-digit and 4-digit NAICS industries in all covered NAICS sectors for employer businesses.

ACES published estimates

- Firms report for all industries in which they operate and have capital expenditures.
- Nonresponse is accounted for by sample weight adjustment.

Robotics Estimates

- The robotics question was asked for the firm and not for the industries in which the firm operates, therefore robotic estimates are tabulated based on NAICS assigned to the firm.
- Firms that reported capital expenditures for equipment but did not respond to the robotic expenditures question are accounted for by imputation.
- **Imputation method:** $\frac{\text{Robotic equipment expenditures}}{\text{Total equipment expenditures}} * \text{Total equipment expenditures}$
- Source of imputation ratio:
 - Firms indicating an investment in robotic equipment in their write-in field → the ratio was obtained from a similar firm in the same NAICS industry and strata (based on payroll).
 - Firms that did not indicate an investment in robotic equipment → the ratio was obtained by calculating the average ratio of robotic expenditures as a percent of equipment expenditures in the same NAICS industry and strata (based on payroll).
- Robotic estimates both reported and imputed were summed and weighted based on the sample weight adjusted for nonresponse of the capital expenditure estimate.

The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance applied (Approval ID: CBDRB-FY20-422 and CBDRB-FY20-423).