National Center for Science and
Engineering Statistics

Survey

Annual Business Survey | 2021

The ABS is the primary source of information on research and development among for-profit businesses operating in the United States with one to nine employees. The ABS also collects data on innovation, technology, intellectual property, and financing from U.S.-based companies of all sizes.

Survey Description

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Survey Overview (2021 Survey Cycle: Data Year 2020)

Purpose

The Annual Business Survey (ABS) provides information on selected economic and demographic characteristics for businesses and business owners by sex, ethnicity, race, and veteran status. Further, the survey measures research and development (R&D) for microbusinesses, new business topics such as innovation and technology, as well as other business characteristics.

Data collection authority

The National Science Foundation Act of 1950, as amended, and the America COMPETES Reauthorization Act of 2010; collected under Office of Management and Budget control number 0607-1004, expiring 31 May 2025.

Major changes to recent survey cycle

Not applicable.

Key Survey Information

Frequency	Annual.
Initial survey year	Calendar year 2017.
Reference period	Calendar year 2020, for innovation, the reference period is 2018–20.
Response unit	Firm.
Sample or census	Sample survey of for-profit employer companies with a U.S. presence engaged in the mining, utilities, construction, manufacturing, wholesale trade, retail trade, or services industries.
Population size	Approximately 4,900,000 employer companies.
Sample size	Approximately 300,000 employer companies.
Key variables	Key variables of interest are listed below.

- R&D performance
- Total and R&D employment
- Sources of R&D funding
- Type of R&D work (basic research, applied research, and development)
- Type of R&D cost (e.g., salaries, wages, and benefits)
- Demographic and entrepreneurial characteristics of the business owner
- Indicators of innovation

- Technology

- Financing

- Management practices

Survey Design

Target population

The target population consists of all companies that allocated most of their annual domestic payroll to for-profit entities and had at least one establishment that had paid employees based on the company's Internal Revenue Service Form 941 that covers 12 March 2021, was classified in an in-scope NAICS industry, was physically located in the United States, and was in business at the end of calendar year 2021.

Sampling frame

The Business Register (BR) serves as the primary input to the sampling frame. The BR is the Census Bureau's comprehensive database of U.S. businesses. BR data are compiled from a combination of business tax returns, data collected from the economic census, and data from other Census Bureau surveys.

Sample design

The ABS has a stratified systematic sample design. Stratification is based on demographic characteristics of the company owners and a NAICS industry code assigned to the company based on its constituent establishments. Companies were selected with certainty if they are known R&D performers with 1–9 employees, 500 or more employees, or meet sampling stratum specific cutoffs for receipts and payroll.

Data Collection and Processing

Data collection

The ABS collects data electronically.

Data processing

All data submitted by respondent companies are reviewed to ensure that data fields are complete and that data are internally consistent. Survey responses often include errors that require correction or unusual patterns that require validation. Automated edit checks are applied to improve the efficiency of data review and correction. Edit checks are designed to catch arithmetic errors and logically inconsistent responses (balance edits). The remaining automated edit checks are designed to flag outliers for further review (analytical edits). If additional information or data corrections are needed, respondents may be contacted to clarify or correct data. If additional information or corrected data cannot be obtained from respondents, data are imputed.

Estimation techniques

Estimates are produced from sums of weighted data (reported or imputed). Exceptions are described in detail in the annual reports containing detailed statistical tables.

Survey Quality Measures

Sampling error

Estimates of sampling errors associated with the detailed statistical tables will be available by request.

Coverage error

There can be both *undercoverage error*, where units are not included in the frame, and *overcoverage error*, where units included in the frame are actually out of scope for the population of interest. The ABS uses the prior-year Business Register to construct the frame, so any changes in businesses that would change the inclusion or exclusion of the business to the survey scope could be sources of coverage error. Prior to tabulation, survey units' information is updated with the most recent available Business Register data to mitigate this source of error.

Nonresponse error

Unit nonresponse will be treated by adjusting weighted reported and imputed data by multiplying each company's sampling weight by a nonresponse adjustment factor. Detailed descriptions of the adjustments for nonresponse are available in the Technical Notes of the ABS data tables (https://www.nsf.gov/statistics/srvyabs/#tabs-2).

Measurement error

Expected sources of measurement error include differences in respondent interpretations of the definitions of R&D activities and differences in how companies count and report numbers of employees in various categories, including whether they work on R&D full time or part time. Little public information exists for most of the small businesses surveyed by the ABS, so it is difficult to determine whether companies are reporting R&D that satisfies the survey's definitions, particularly where the development of software and internet applications are concerned. Although quantitative metrics of measurement error are not available, there are ongoing efforts to minimize measurement error, including questionnaire pretesting, improvement of questionnaire wording and format, inclusion of more cues and examples in the questionnaire instructions, in-person and telephone interviews and consultations with respondents, and post-survey evaluations.

Data Availability and Comparability

Data availability

Data produced from the ABS will be available at https://www.nsf.gov/statistics/srvyabs/.

Data comparability

Some estimates from the 2021 ABS may not be directly comparable to prior ABS results due to changes in survey methodology. Sources of possible incomparability include changes to questionnaire wording and instructions, changes to data editing and tabulation, and changes to imputation and nonresponse adjustments.

Data Products

Publications

ABS data will be published in NCSES InfoBriefs and data tables in the Business and Industry R&D series.

Electronic access

Results from this survey will be available on the NCSES Web site **https://ncses.nsf.gov/**. The ABS contains confidential data that are protected under Title 13 and Title 26 of the U.S. Code. Restricted microdata will be available at any of the 15 secure Research Data Centers administered by the Center for Economic Studies (CES) at the Census Bureau. Researchers interested in accessing microdata can apply for a restricted-use license by submitting a proposal to the CES, which evaluates proposals based on their benefit to the Census Bureau, scientific merit, feasibility, and risk of disclosure. To learn more about the Research Data Centers and how to apply, please visit the **CES page on research with restricted-use data**. For additional information about the application process, including how to initiate a project, please contact the administrator at the primary site where the research will be conducted. Per the Federal Cybersecurity Enhancement Act of 2015, the data are protected from cybersecurity risks through screening of the systems that transmit the data.