



National Center for Science and
Engineering Statistics

Survey

Annual Business Survey (ABS) | 2023

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 (2023 Survey Cycle: Data Year 2022)

Purpose

The Annual Business Survey (ABS) is the primary source of information on research and development (R&D) expenditures for nonfarm, for-profit, businesses operating in the United States with one to nine employees. The ABS also collects data on innovation-related data, globalization, and business owner characteristics from nonfarm, for-profit, businesses operating in the United States with at least one employee.

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. The disclosure review number is NCSSES-DRN24-040.

Major changes to recent survey cycle

Modules on Financing, Technology and Intellectual Property, and Sustainability and Climate Impact were added. Modules on Design and Intellectual Property and on Domestic and Foreign Transaction Coronavirus Pandemic Impact on R&D and Business Activities were removed. Some of the questions removed may return in future questionnaires. New questions were added on moving production to the United States. The field of study question options were revised. An expanded module on innovation was included.

Key Survey Information

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| Frequency | Annual. |
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| Initial survey year | Calendar year 2017; for innovation, the reference period was 2015–17. |
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| Reference period | Calendar year 2022; for innovation, the reference period was 2020–22. |
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| Response unit | All nonfarm businesses in the United States. |
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| Sample or census | Sample survey of for-profit companies with a U.S. presence engaged in the mining, utilities, construction, manufacturing, wholesale trade, retail trade, or services industries. |
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| Population size | Approximately 4,900,000 employer businesses. |
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| Sample size | In 2017 and every fifth year thereafter, the ABS sample size is approximately 850,000 employer businesses. In other years, the ABS sample size is about 300,000 employer businesses. |
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| Key variables | Key variables of interest are listed below. |
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- 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 fringe benefits)
- Sustainability and climate impact
- Demographic and entrepreneurial characteristics of the business owner
- Indicators of innovation
- Technology and intellectual property
- Financing

Survey Design

Target population

The target population consists of all for-profit nonfarm companies that are physically located in the United States, that have at least one establishment classified as being an in-scope sector based on the North American Industry Classification System (NAICS), and that was in business during the survey reference year and data collection period.

Sampling frame

The Business Register, maintained by the Census Bureau, is the source used to create the sampling frame for the ABS.

Sample design

The ABS has a systematic stratified sampling design that uses simple random sampling within strata. Stratification is based on the NAICS industry code. Companies were selected with certainty if they are known R&D performers with one to nine employees, have 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 data tables.

Survey Quality Measures

Sampling error

Estimates of sampling errors associated with the ABS data tables are available from the Survey Manager 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 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 recently available Business Register data to mitigate this source of error.

Nonresponse error

Unit nonresponse is done 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 ABS data tables (<https://nces.nsf.gov/surveys/annual-business-survey/>).

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. 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 are available at <https://nces.nsf.gov/surveys/annual-business-survey/>.

Data comparability

The ABS is a cross-sectional survey designed to produce annual estimates of R&D performance and related statistics. Some estimates from the 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. See the "Data Comparability" section in the Technical Notes for specific information about changes for the current iteration of the survey.

Data Products

Publications

ABS data are published in NCSES InfoBriefs and data table reports available at <https://nces.nsf.gov/surveys/annual-business-survey/>.

Electronic access

Results from this survey are available on the [NCSES website](#). 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 opportunities](#). 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.