

Federally Funded Research and Development Center Research and Development Survey, Fiscal Year 2013

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Technical Notes

Survey Overview

Purpose. The National Science Foundation (NSF) Federally Funded Research and Development Center (FFRDC) R&D Survey is the primary source of information on separately accounted for R&D expenditures at FFRDCs in the United States.

Data collection authority. The information is solicited under the authority of the National Science Foundation Act of 1950, as amended. The Office of Management and Budget control number is 3145-0100 and expires on 30 September 2016.

Survey Contractor. ICF International.

Survey Sponsor. The FFRDC R&D Survey is sponsored by NSF.

Key Survey Information

Frequency. Annual.

Initial survey year. 2001.

Reference period. FY 2013.

Response unit. Establishment.

Sample or census. Census.

Population size. 40.

Sample size. 40; the survey was a census of all known eligible FFRDCs.

Survey Design

Target Population. All FFRDCs.

Sample frame. FFRDCs are identified through the NSF Master Government List of FFRDCs. NSF is responsible for maintaining this list and queries all federal agencies annually to determine any changes to, additions to, or deletions from the list.

Sample design. The FFRDC R&D Survey is a census of all eligible organizations.

Data Collection and Processing Methods

Data collection. The FY 2013 survey questionnaires were sent by e-mail in November 2013. Respondents could choose to submit an Adobe PDF questionnaire downloaded from the Web or use a

Web-based data collection system to respond to the survey. Every effort was made to maintain close contact with respondents in order to preserve both the consistency and continuity of the resulting data. Questionnaires were carefully examined for completeness upon receipt. Survey data reports were then prepared for each institution; these showed comparisons between the current and 2 prior years of data and noted any substantive disparities. Respondents were sent personalized e-mail messages asking them to provide any necessary revisions before final processing and tabulation of data. These e-mail messages included a link to the FFRDC Survey Web-based collection system, allowing respondents to view and correct their data online.

Respondents were asked to explain significant differences between current-year reporting and established patterns of reporting verified for prior years. They were encouraged to correct prior-year data, if necessary. When respondents updated or amended figures from past years, NSF made corresponding changes to trend data in the 2013 data tables and to the underlying microdata. For accurate historical data, use only the most recently released data tables.

Mode. Respondents could choose to submit an Adobe PDF or Microsoft Excel questionnaire downloaded from the Web, or use a Web-based data collection system to respond to the survey. All FFRDCs submitted data using the Web-based survey.

Response Rates. All 40 FFRDCs on the NSF Master Government List of FFRDCs at the start of the FY 2013 survey cycle completed the key survey questions.

Data Editing. The FFRDC R&D Survey was subject to very little editing; respondents were contacted and asked to resolve possible self-reporting issues themselves. Questionnaires were carefully examined by survey staff upon receipt. Reviews focused on unexplained missing data and explanations provided for changes in reporting patterns. If additional explanations or data revisions were needed, respondents were sent personalized e-mail messages asking them to provide any necessary revisions before the final processing and tabulation of data.

Imputation. Missing data are seldom imputed for the FFRDC R&D Survey. For the FY 2013 survey, the Center for Naval Analyses (CNA) was unable to report expenditures by character of work (Question 3). All CNA expenditures, \$85,132, were imputed as applied research, which was 1.3% of all FFRDC applied research expenditures.

Weighting. FFRDC R&D Survey data were not weighted.

Variance estimation. No variance estimation techniques were used.

Survey Quality Measures

Sampling error. Because the FY 2013 survey was a survey distributed to all organizations in the universe, there was no sampling error.

Coverage error. Because of the limited size of the FFRDC universe, there is little to no coverage error for this survey. FFRDCs are identified through the NSF master list of FFRDCs. NSF is responsible for maintaining the master list and queries all federal agencies annually to determine changes, additions, or deletions to the list.

Nonresponse error. Most FFRDCs have incorporated the data needed to complete most of the survey questions into their record-keeping systems. Many FFRDCs choose not to complete Question 4 of the survey, which asks for expenditures by type of cost. These FFRDCs are managed by private companies for whom salary information is considered proprietary. Fourteen FFRDCs did not respond to Question 4.

Three other FFRDCs could not provide software expenditures, and two could not provide equipment expenditures. One FFRDC did not report its operating budget (Question 5).

Measurement error. NSF discovered during the FY 2011 survey cycle that seven FFRDCs were including capital project expenditures in the R&D totals reported on the survey. Corrections made for the FY 2011 survey cycle lowered the total expenditures by \$468 million. However, previous years still include an unknown amount of capital expenditures in the total. The amount is estimated to be less than \$500 million per year.

Prior to the FY 2011 survey, FFRDCs administered by the MITRE Corporation had reported only internally funded R&D expenditures. After discussions with NSF, these five FFRDCs agreed to report all FY 2011 operating expenditures for R&D and to revise their data for FYs 2008–10.

NSF discovered during the FY 2013 survey cycle that Los Alamos National Laboratory (LANL) was reporting some expenditures that were not for R&D as defined by this survey. Corrections made for the FY 2013 survey cycle lowered the laboratory's total expenditures by \$349 million. LANL was also incorrectly reporting that all expenditures were for basic research. In the corrections made for FY 2013, LANL reported that \$1,554 million (91%) of total research expenditures was for applied research. LANL data from previous years still include an unknown amount of expenditures that were not for R&D and categorize all expenditures as basic research.

Data Comparability (Changes)

Annual data are available for FYs 2001–13. When the review for consistency between each year's data and submissions in prior years reveals discrepancies, it is sometimes necessary to modify prior-year data. For accurate historical data, use only the most recently released data tables. Individuals wishing to analyze trends other than those published in the National Center for Science and Engineering Statistics' most recent publication are encouraged to contact the Project Officer for more information about the comparability of data over time.

Changes in questionnaire. FFRDCs are asked to provide R&D expenditures by source of funding and character of work. In FY 2010, NSF revised the survey to include three new questions requesting expenditures funded by ARRA, expenditures by type of cost, and total operating budget.

Definitions

- *Expenditures funded by the American Recovery and Reinvestment Act (ARRA).* In Question 2, FFRDCs were asked for the amount of federal expenditures funded by ARRA.
- *Expenditures by character of work.* In Question 3, FFRDCs were asked for the amount of federal and nonfederal R&D expenditures by character of work, as defined below:
 - *Basic research.* Research that is undertaken primarily to acquire new knowledge without any particular application or use in mind.
 - *Applied research.* Research that is conducted to gain the knowledge or understanding to meet a specific, recognized need.
 - *Development.* Development is the systematic use of the knowledge or understanding gained from research directed toward the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes.
- *Expenditures by source.* In Question 1 of the survey, FFRDCs were asked to report their total R&D expenditures by funding source, as defined below:

- *U.S. federal government.* Any agency of the U.S. government. Federal funds that were passed through to the reporting institution from another institution were included.
 - *State and local government.* Any state, county, municipality, or other local government entity in the United States, including state health agencies.
 - *Business.* Domestic or foreign for-profit organizations. Funds from a company's nonprofit foundation were not reported here; they were reported under Nonprofit organizations.
 - *Nonprofit organizations.* Domestic or foreign nonprofit foundations and organizations.
 - *All other sources.* Sources not reported in other categories, such as funds from foreign governments.
- *Expenditures by type of cost.* In Question 4, FFRDCs were asked for expenditures by type of cost, as defined below:
 - *Salaries, wages, and fringe benefits.* Included compensation for all R&D personnel whether full time or part time, temporary or permanent, including salaries, wages, and fringe benefits paid from institution funds and from external support.
 - *Software purchases:* Included payments for all software, both purchases of software packages and license fees for systems.
 - *Equipment:* Included payments for movable equipment, including ancillary costs such as delivery and setup.
 - *Subcontracts:* Payments to subcontractors or subrecipients for services on R&D projects.
 - *Other direct costs:* Other costs that did not fit into one of the above categories, including (but not limited to) travel, computer usage fees, and supplies.
 - *Indirect costs.* Included all indirect costs (overhead) associated with R&D projects.
- *Fiscal year.* FFRDCs were asked to report data for their fiscal year (or financial year).
- *Research and development (R&D).* The FFRDC R&D Survey requested data from FFRDCs on their R&D. R&D was defined as systematic study directed toward fuller knowledge or understanding of the subject studied. R&D included basic research, applied research, and development (see the definition of Expenditures by character of work for additional information). R&D did not include outreach or non-research training programs. Respondents were also asked to exclude capital projects (i.e., construction or renovation of research facilities) from reported expenditures.
- *R&D expenditures.* FFRDCs were asked to report all current operating expenditures for activities specifically organized to produce R&D outcomes, including those funded by external sponsors or separately budgeted and accounted for by the organization using internal funds. Expenditures included indirect costs, equipment, software, clinical trials, and subcontract expenditures.
- *Total operating budget.* Total executed operating budget for the FFRDC for FY 2013, excluding capital construction costs.