National Center for Science and Engineering Statistics

FY 2016 Nonprofit Research Activities Survey: Summary of Methodology, Assessment of Quality, and Synopsis of Results

Contents

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The Nonprofit Research Activities (NPRA) Survey data presented in this working paper do not meet the quality criteria outlined in NCSES's statistical standards. NCSES does not consider all the estimates in this report to be official statistics.

Abstract

The nonprofit sector is one of four major sectors of the economy, along with business, government, and higher education, that performs or funds research and development. The FY 2016 Nonprofit Research Activities Survey marks the first nationally representative collection of R&D data from the nonprofit sector in more than 20 years. This working paper presents the results of that effort, followed by a discussion of the methodology, alternative estimates to help assess the accuracy of results, and lessons learned that can inform future data collections. The survey was conducted by the National Center for Science and Engineering Statistics.

Introduction

The National Center for Science and Engineering Statistics (NCSES) serves as a clearinghouse for the collection, interpretation, analysis, and dissemination of objective data on science, engineering, technology, and research and development for use by policymakers, practitioners, researchers, and the public. One component of this activity is sponsorship of the Nonprofit Research Activities (NPRA) Survey, which collected information on R&D-related activities performed or funded by nonprofit organizations in the United States. A pilot survey was conducted from September 2016 through February 2017, and a full implementation of the survey, which collected FY 2016 data, was conducted in 2018.[1]

The nonprofit sector is one of four major sectors of the economy (i.e., business, government, higher education, and nonprofit organizations) that perform or fund R&D. Historically, NCSES has combined nonprofit sector data with data from the other three sectors to estimate total national R&D expenditures, which are presented in the annual series National Patterns of R&D Resources. The other three sectors are surveyed annually; however, prior to fielding the pilot NPRA Survey, NCSES had last collected R&D data from nonprofit organizations in 1997. Since then, National Patterns of R&D Resources has relied on statistical modeling based on the results of the 1996–97 Survey of Research and Development Funding and Performance by Nonprofit Organizations, supplemented by data from the NCSES Survey of Federal Funds for Research and Development (Federal Funds Survey) that details federal R&D funding to nonprofits, to continue estimation of the nonprofit sector's R&D expenditures.

The primary objective of this new survey was to fill data gaps in the National Patterns of R&D Resources in such a way that the data are compatible with the data collected about other sectors of the U.S. economy and are appropriate for international comparisons.

Because this was the first time this population was surveyed by NCSES in more than 20 years, there were many significant challenges but also many successes that can be built upon for future survey efforts. This report details the methodological challenges and lessons learned. Due to the low response rate (48% unweighted and 61% weighted), results should be viewed as rough estimates and do not meet NCSES criteria for official statistics. Appendix A contains tabulated survey results, along with the standard errors and imputation rates associated with each data point provided.

Summary of FY 2016 Methodology

Sampling

The target population for the NPRA Survey is nonprofit organizations in the United States. An organization is considered a nonprofit if it is categorized by the Internal Revenue Service (IRS) as a 501(c)(3) public charity, a 501(c)(3) private foundation, or another exempt organization, such as a 501(c)(4), 501(c)(5), or 501(c)(6).[2] As recorded in the IRS Exempt Organizations Business Master File Extract (EO BMF) dated December 2016, there were 1.6 million tax-exempt organizations in the United States. Of those, nearly 1.2 million filed an information return with the IRS during the previous 24 months. Certain nonprofit organizations are not required to file an information return (e.g., churches), but those that are must file Form 990, 990-N, 990-EZ, or 990-PF, based on their organization type and financial size.[3]

Small organizations, with gross receipts under $50,000, are allowed to file Form 990-N (the e-Postcard), which does not require the organization to report financial data. Nearly half the filing organizations in the December 2016 EO BMF filed Form 990-N. These organizations were excluded from the frame because of their relatively small size and lack of financial data. The remaining organizations filed Form 990, 990-EZ, or 990-PF, which all require financial reporting.

The financial information on Forms 990, 990-EZ, and 990-PF is captured in the National Center for Charitable Statistics (NCCS) Core Files. The 2013 Core Files were the latest available at the time of the sample selection (September 2017) for the NPRA Survey, which requested data for FY 2016. A total of 618,612 organizations had financial information recorded in the 2013 Core Files. Organizations were excluded from the frame if they were considered to be outside the scope of the survey. Specifically, organizations were excluded if they had an IRS 501(c) subsection code that did not equal 3, 4, 5, or 6; had a foundation code indicating that they were a school, church, or government; were located outside the United States; had a North American Industry Classification System (NAICS) code indicating that they were in the public administration sector; or had an NCCS code indicating that they were a government entity or otherwise out of scope. In addition, organizations were excluded if they were found to be inactive during the pilot NPRA Survey, which was conducted in late 2016 through early 2017.

A financial threshold was imposed to further reduce the frame size. For organizations filing Form 990 or Form 990-EZ, only those with $500,000 or more in expenses were included; for organizations filing Form 990-PF, only those with $2,750,000 or more in total assets were included.

For the 117,539 organizations remaining after exclusions and financial truncation, stratification was done based on frame variables associated with R&D. This included the NCCS's National Taxonomy of Exempt Entities (NTEE) Core Code, which categorizes the primary function of the organization (e.g., hospitals, research institutes), as well as a propensity score measuring the likelihood that an organization performed or funded research. The propensity score was developed from a model relating likely performers and likely funders to financial variables in the frame. The likely performers and likely funders were a subset of organizations identified from auxiliary sources that strongly indicated that they performed or funded research. The model produced a propensity score, where high values indicate a higher likelihood of performing or funding research. The propensity scores were grouped into high, moderate, and low likelihood.

The propensity score strata were combined with other stratifiers to form the final stratification. Based on the results of the pilot survey, size strata defined by the total amount of expenses were also added.

The sample was stratified as follows:

- Stratum 1—Likely performers and funders
- Stratum 2—Likely performers
- Stratum 3—Likely funders

- Stratum 4—Hospitals

- Stratum 5—Research institutes

- Stratum 6a—Form 990, high likelihood of R&D performance

- Stratum 6b—Form 990, moderate likelihood of R&D performance

- Stratum 6c—Form 990, low likelihood of R&D performance

- Stratum 7a—Form 990-PF, high likelihood of R&D funding

- Stratum 7b—Form 990-PF, moderate likelihood of R&D funding

- Stratum 7c—Form 990-PF, low likelihood of R&D funding

Strata 1–3 included organizations with a high likelihood of performing or funding research based on various auxiliary data, including past surveys, membership lists, and other government data collections. Organizations in these strata were sampled with certainty. Strata 4–7c included organizations whose performer or funder status was unknown. Stratum 4 included organizations identified as hospitals by their NTEE Core Code, if those organizations had not already been assigned to strata 1–3. Stratum 5 included organizations identified as research institutes that had not already been assigned to strata 1–3. Strata 6a–7c included organizations whose likelihood of performing or funding research was predicted using information on their Form 990 (strata 6a–6c) or Form 990-PF (strata 7a–7c). Within each stratum, organizations were grouped into six size classes based on total expenses. The sample was allocated to the strata to minimize the variability of total expenses, resulting in intentional oversampling in substrata that included large organizations.

The sample was a systematic (1-in-k) random sample of organizations within each stratum. The organizations were selected with equal probability. Before the systematic sample was selected, the organizations were stratified implicitly (sorted) by total expenditures to ensure that the sample was proportionately distributed by size. The stratum variances for the sample design calculations excluded 206 organizations with expenses larger than $900 million. It was assumed that these 206 organizations would be self-representing due to their size and have minimal impact on the sampling variance. The 206 organizations were selected with certainty. The final sample sizes by stratum are shown in table A.

TABLE A

Final frame and sample sizes for the Nonprofit Research Activities Survey: FY 2016

(Strata)

Stratum	Stratum number	Frame total	Sample size
Total		117,696	6,071
Likely performers and funders	1	164	154
Likely performers	2	1,240	1,184
Likely funders	3	932	919
Hospitals	4	3,310	1,092
Research institutes	5	2,015	112
Form 990 (likelihood of R&D performance)			
High likelihood	6a	6,590	505
Moderate likelihood	6b	17,995	616
Low likelihood	6c	68,364	1,175
Form 990-PF (likelihood of R&D funding)			
High likelihood	7a	1,444	93
Moderate likelihood	7b	5,101	90
Low likelihood	7c	10,541	131

Note(s):
The frame total was developed prior to removing 157 out-of-scope organizations before selecting the sample. The final sampling frame total was 117,539.

Data Collection and Processing Methods

Data collection for the NPRA Survey occurred in two general phases. The first focused on determining whether the organizations in strata 4–7c (i.e., "unknown" organizations) performed or funded research during FY 2016. The second involved notifying organizations that they had been selected to participate in the survey and sending the survey materials to each organization's point of contact via mail and e-mail. One major challenge of the survey was the inability to locate e-mail addresses for 52% of the surveyed organizations, meaning these organizations only received the survey and reminders by mail.

In phase 1, organizations in strata 4–7c were sent a letter providing details about the survey, a screener response card, and a business reply envelope in late February 2018. They were asked to complete the screener card by indicating whether their organization had performed or funded research during FY 2016 and providing their contact information (i.e., contact name, title, e-mail address, and phone number). If an organization said that it had not performed or funded research in FY 2016, it was not contacted again. The last screener card was returned on May 25, and after a week during which no additional screener cards were received, phase 1 was considered closed on June 1.

Organizations in strata 1–3 (i.e., "known" organizations) received their first communication about the survey in phase 2. Organizations from phase 1 that either responded that they performed or funded research or did not respond at all were also included in phase 2. All organizations included in phase 2 received a link to the Web survey via mail (and e-mail for those with known e-mail addresses) in late April 2018. A second mailing was done in late May that included a paper version of the questionnaire. There were two versions of the FY 2016 NPRA Survey questionnaire: A health version of the survey form was sent to organizations classified as a health organization by NCCS, and the standard survey form was sent to all other organizations. Questions on the two surveys were the same, but during the pilot and preparations for the FY 2016 survey, NCSES learned that large health-focused nonprofits, such as hospitals, were less likely to discard a "health survey" form than they would a "nonprofit organization survey" form. Several more contacts (e-mail, mail, and phone) were made throughout the summer to encourage response, including mailing another copy of the questionnaire in late July. Every effort was made to maintain close contact with respondents throughout the process to ensure the accuracy of the resulting data. Questionnaires were carefully examined for completeness upon receipt, and respondents were sent personalized e-mails asking them to make any necessary revisions before the final processing and tabulation of data.

Response Rates

Overall response was defined as completing the questionnaire or indicating that the organization does not perform or fund research, and response rates were calculated out of the number of eligible organizations in the sample—i.e., excluding organizations found to be ineligible for the survey because they were not a nonprofit, were covered through another NCSES data collection, or were defunct (i.e., out of business). The survey obtained a 48% unweighted and 61% weighted response rate (table B) across all strata (i.e., 2,919 organizations responding out of 6,071).

TABLE B

Response rates for overall response, performer response, and funder response, by stratum, organization type, and survey form (unweighted and weighted)

(Percent)

Stratum	Overall response rate		All performers		All funders	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
All strata	48	61	49	61	51	62
Likely performers and funders (stratum 1)	62	62	62	62	63	63
Likely performers (stratum 2)	48	48	48	48	50	50
Likely funders (stratum 3)	42	42	46	46	43	43
Hospitals not in stratum 1-3 (stratum 4)	35	45	35	46	40	49
Research institutes (stratum 5)	44	52	48	54	46	56
Form 990 (likelihood of R&D performance)						
High likelihood (stratum 6a)	50	60	51	61	54	62
Moderate likelihood (stratum 6b)	52	61	53	61	55	64
Low likelihood (stratum 6c)	61	67	61	68	62	68
Form 990-PF (likelihood of R&D funding)						
High likelihood (stratum 7a)	49	41	49	41	52	42
Moderate likelihood (stratum 7b)	40	38	43	42	40	38
Low likelihood (stratum 7c)	56	40	58	41	56	40
Organization type						
Hospital organizations (in strata 1-4)	35	45	35	45	41	49
Nonhospital organizations	51	61	53	62	53	62
Survey form						
Health	42	61	42	61	45	63
Standard	53	60	54	61	55	62

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Unweighted response rates ranged from a low of 35% for hospitals not in stratum 1–3 (i.e., those not already identified as being likely to perform or fund research) to 62% for the likely performers and funders (stratum 1). When viewed as a whole, hospitals were much less likely to respond than were non-hospitals across all strata (35% versus 51%). A major challenge of surveying hospitals was getting past the organization's gatekeepers to an office or individual that would be willing to respond to the survey. Another challenge was the degree of consolidation among individual hospitals that was unable to be determined in advance from the information provided on the NCCS Core Files. Many hospitals viewed as separate entities according to their Form 990 information were in fact part of much larger health systems and sent their surveys to a parent organization responsible for centralized reporting.

Performer and funder response rates were both calculated to count organizations as complete if they answered all the questions asked of them. Performer response rates were calculated as the share of completed performer questionnaires plus organizations that indicated they only fund research plus organizations that indicated they do not perform or fund any research, out of all eligible organizations. Similarly, funder response rates were calculated as the share of completed funder questionnaires plus organizations that indicated they only perform research plus organizations that indicated they do not perform or fund any research, out of all eligible organizations.

The performer response rate was 49% unweighted (i.e., 2,985 organizations out of 6,071) and 61% weighted. The funder response was 51% unweighted (i.e., 3,074 organizations out of 6,071) and 62% weighted.

Among those who responded, the percentage of those reporting R&D activity varied considerably by stratum (table C). Across all strata, only 27% reported R&D activity. This ranged from a low of 4% for those in the 990-PF low likelihood stratum to a high of 83% for the likely performers and funders stratum.

For more detail including response by type of nonprofit and item response rates, see the technical tables in Appendix B.

TABLE C

Nonprofit Research Activities Survey respondents who reported R&D activity, by sampling stratum: FY 2016

(Percent)

Stratum	% R&D active
All strata	27.4
Likely performers and funders	83.2
Likely performers	57.3
Likely funders	54.6
Hospitals	15.3
Research institutes	44.9
Form 990 (likelihood of R&D performance)	7.5
High likelihood	15.4
Moderate likelihood	9.4
Low likelihood	3.8
Form 990-PF (likelihood of R&D funding)	5.8
High likelihood	8.7
Moderate likelihood	5.6
Low likelihood	4.1

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Nonresponse Bias Analysis

The nonresponse bias analysis was conducted using each sampled organization's 2016 total expenses. Relative mean bias, which defines bias as a percentage of the weighted mean for respondents, was used so that bias estimates were comparable across strata and other groupings. Relative bias in mean total expenses was -.526 (i.e., 52.6%) overall, ranging from -0.946 to 0.196 across strata. Four of the 11 strata had significant relative bias in mean total expenses. In order of absolute value of the bias (from highest to lowest), the four strata are:

1. Stratum 6a (Form 990, high likelihood): -0.946

2. Stratum 4 (hospitals): -0.689

3. Stratum 6b (Form 990, moderate likelihood): -0.295

4. Stratum 6c (Form 990, low likelihood): -0.143

Organizations that received the health survey form also had a significant level of bias in total expenses (0.875). Organizations receiving the standard survey form showed less bias, although it was statistically significant (-0.115).

Estimated coverage for total expenses was defined as the proportion of total expenses on the sampling frame accounted for by sample weighted respondents, (i.e., a measure of how well sample-weighted responding organizations reflect the sampling frame). Coverage rates ranged from 25% to 58% across strata, with overall coverage of 39%. Again, hospitals (stratum 4) had the lowest coverage rate (25%) and hospital organizations (NTEE Core Codes E20–E24) had a coverage rate of 29%, compared with 47% for nonhospitals.

Two major trends appeared in the nonresponse bias analysis. First, hospitals and health organizations showed the highest nonresponse bias and lowest coverage rates for total expenses, fulfilling expectations about the difficulty of surveying these groups.

Second, although the certainty strata showed moderate to low levels of nonresponse bias as well as moderate levels of coverage for expenses, a different pattern appeared within the noncertainty stratum in which organizations' likelihood of performing or funding research was predicted. Organizations with a high likelihood of performing R&D (stratum 6a) showed higher levels of nonresponse bias and lower levels of coverage for expenses than did groups with a lower likelihood of performing R&D. However, the same pattern does not hold for organizations with a high likelihood of funding R&D and that file Form 990-PF (i.e., stratum 7a, private foundations). This stratum had very low nonresponse bias (0.196). It is interesting that organizations known to have higher levels of R&D (i.e., certainty strata) and private foundations predicted to have high levels of R&D have moderate to low nonresponse bias, whereas other types of nonprofit organizations predicted to have high levels of R&D exhibited very high nonresponse bias. This suggests that organizational characteristics beyond real or predicted R&D levels are important for understanding nonresponse bias and reinforces the importance of coverage evaluation and projection techniques performed.

To reduce the risk of bias in the survey estimates, nonresponse and calibration adjustments were made. These weights were performed as part of the overall weighting approach for the NPRA Survey (see next section). Weighting for nonresponse reduces the risk of nonresponse bias to the extent possible given the data currently available for nonrespondents.

Imputation, Weighting, and Estimation Procedures

Missing data were imputed for organizations that (1) did not respond to the survey, but for which auxiliary data about the amounts spent performing or funding research were available, (2) did not respond to the survey, but for which information was available from the pilot survey about the amounts spent performing or funding research, and (3) reported that they performed or funded research (Questions 7 and 8, respectively) but did not provide information on the amounts spent performing or funding research (Questions 9 and 16, respectively). The last group included organizations that completed the screener card in phase 1 but did not complete the questionnaire in phase 2. Organizations that did not fall into one of these groups were accounted for in the nonresponse weighting adjustment described below. For those organizations performing R&D activities, imputation accounted for $3.1 billion of the $22.6 billion weighted total reported. For those funding R&D activities, imputation accounted for $792 million of the $10.5 billion weighted total reported.

For large organizations that did not respond to the survey, publicly available documents—such as annual reports and financial statements—were used to impute the amounts spent on research activities. In total, 83 organizations were included in the lookups, including the 40 largest nonresponding organizations from strata 1–3 (likely performers and funders) and the 10 largest organizations who reported either performing or funding but did not provide an amount. This auxiliary look-up method resulted in imputing research-performing status for 46 organizations, research-funding status for 33 organizations, total performance dollar amounts for 24 organizations, and total funding dollar amounts for 2 organizations.

Sixty-three organizations reported the amount spent on performing research on the pilot NPRA Survey but did not provide a response on the FY 2016 survey. Similarly, 44 organizations reported the amount spent on funding research on the pilot survey but not on the FY 2016 survey. The pilot survey was used to impute values for these organizations. The pilot survey amounts were adjusted by an imputation factor to account for inflation or deflation in the reported amounts from the previous year. Imputation factors are the ratio of the current survey data to the previous survey data for organizations that responded to both, and these factors reflect the average annual growth or decline in research expenditures. The imputation factor was applied to responses to the previous survey to estimate the amount for the current survey. The total imputed amount spent in each subcategory for performing research (Questions 10, 11, and 12) and funding research (Questions 17, 18, 19, and 20) was imputed by distributing the total amounts to the subcategories in the same proportions as reported on the pilot survey.

For organizations that reported performing or funding research (Questions 7 and 8, respectively) but did not provide the amount spent (Questions 9 and 16, respectively), amounts were imputed from a regression model using expenses and assets reported on Form 990 or Form 990-PF and significant classification variables such as NTEE Core Code. The source of the expenses and assets was the 2016 Statistics of Income (SOI) financial data extract downloaded from the IRS. If no 2016 data were available, data for 2015 or 2014 were substituted.

The total imputed amount spent in each subcategory for performing research (Questions 10, 11, and 12) and funding research (Questions 17, 18, 19, and 20) was imputed by distributing the total amounts to the subcategories, based on the average proportions for the responding organizations in the imputation classes based on type of organization (groupings by NTEE Core Codes).

The nonresponse weighting adjustment accounted for organizations that did not respond to the FY 2016 survey and for which information from other sources was not available to use for imputation. For these adjustments, the definition of respondents included organizations that performed or funded research (confirmed eligible) and those that reported that they did not perform or fund research (confirmed ineligible). Nonrespondents were the organizations for which eligibility had not been determined (unresolved eligibility status).

The nonresponse adjustment was a ratio adjustment where the respondents (r) were weighted to account for the nonrespondents (nr). The nonresponse adjustment calculation was weighted based on base weight and total expenses. The base weight was adjusted by the nonresponse factor, $W2 = W1 * f1$.

Nonresponse classes were determined through the nonresponse bias analysis that identified variables with differential nonresponse. This was done using a logistic regression model with survey response as the outcome. The outcome was modeled based on the frame data and auxiliary information available for both respondents and nonrespondents. The frame data included information from Form 990 and Form 990-PF at the time of frame creation (2013). Other information explored in the nonresponse analysis included expenses, assets, and revenue from the 2016 SOI data and organizations from the FY 2016 Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (Federal Support Survey). Because the available data for nonresponse adjustment differed between Form 990 and Form 990-PF, the response models were calculated separately for organizations filing Form 990 and for organizations filing Form 990-PF. Nonresponse classes were based on significant variables within each group.

The last step in the weighting process was to calibrate the weighted expenses for the responding organizations to match the total expenses of nonprofit organizations in the population based on the 2016 SOI financial data extract. This adjustment corrected for changes in the population that may have occurred between frame development in 2013 and the reference year of the survey (FY 2016). The calibration adjustment was based on the respondents and the out-of-sample organizations found during the data collection. Although the out-of-sample organizations did not qualify for the NPRA Survey, they were still represented in the population.

Successive difference replication (SDR) was used to estimate the variance of the estimates. SDR was developed for systematic samples where the frame is ordered in such a way as to improve the sampling variance. The sample selection was sorted by expenses within each stratum. In comparison to the direct variance estimator, SDR has the advantage of capturing the variability resulting from the imputation and weighting process. The variance estimates were based on 80 replicates. For each replicate, every selected organization was weighted by a replicate factor of 1.0, 1.7, or 0.3. The replicate factor was applied to the sampling weight. For each sample replicate, nonresponse and calibration adjustments were recalculated as described above.

Refinement of the Final Estimates

There were a series of estimates developed for the FY 2016 NPRA Survey as the estimation methodology was refined. Each estimate was checked for errors and benchmarked against existing comparable data.

During the first run of the estimation procedures on the final data, two errors were discovered. First, two extremely large organizations were weighted twice due to duplicate representation in the sampled employer identification numbers (EINs). Second, many organizations found to perform R&D via the Federal Support Survey were not accurately coded at the time of sampling and were thus placed in the unknown strata which received higher weighting.

To correct these errors, the duplicated organizations were permanently removed from the dataset, and alternatives to handling the incorrectly stratified organizations were explored in a series of alternate estimates. Further refinements were also made to the estimation plan that would compare weighting by counts vs. expenses.

To gauge the sensitivity of the original estimates, four alternate approaches for estimating nonprofit R&D performance were considered: two based on counts of organizations and two based on expenses, each with and without attempts to correct the issue of the incorrectly classified organizations. Specifically, alternate estimate 1 used the original sampling strata with no revisions and was weighted to total expenses on the frame. Alternate estimate 2 adjusted the original sampling strata to move the inaccurately coded organizations to the known strata ("strata adjusted for Federal Support Survey misses") and was also weighted to total expenses. Alternate estimate 3 used the original sampling strata with no revisions and was weighted based on the count of organizations on the frame. Alternate estimate 4 adjusted the sampling strata as was done for alternate estimate 2 and was weighted to the count of organizations.

Following the evaluation of these alternate estimates, a final estimate was developed that allowed the original sampling strata to stay unaltered but accounted for the incorrect classification of the organizations by flagging them in the imputation and nonresponse adjustment models. The final estimate also based the nonresponse adjustment and final calibration on total expenses, which was determined to be the most appropriate measure to use after evaluating the previous estimates.

The four alternate estimates range from between $23.4 billion and $28.6 billion in total R&D performance, of which federal sources account for between $9.2 billion and $11.5 billion (table D). The final survey estimates show total nonprofit R&D performance at $22.6 billion, of which federal sources accounted for $8.3 billion.

TABLE D

Comparison of alternate estimates with final estimate of nonprofit R&D performance

(Billions of dollars)

Estimate	Weighting cells	Weighted to	Total	Federal	Internal	Foundations and other nonprofits	Businesses	Individual donors	All other sources
Alternate estimate 1	Original sampling strata	Total expenses	26.5	10.6	7.5	3.8	2.4	0.9	1.4
Alternate estimate 2	Strata adjusted for FSS misses	Total expenses	23.4	9.2	6.7	3.4	2.1	0.8	1.2
Alternate estimate 3	Original sampling strata	Total organizations	28.6	11.5	8.0	4.2	2.5	1.0	1.6
Alternate estimate 4	Strata adjusted for FSS misses	Total organizations	24.7	9.7	7.0	3.7	2.2	0.9	1.3
Final estimate	Original sampling strata with flags for FSS organizations	Total expenses	22.6	8.3	6.7	3.5	2.0	0.8	1.3

FSS = Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

There are no independent sources of data on R&D performance by nonprofit organizations, which is why an updated NPRA Survey was so important to undertake. However, one source of comparable data on R&D funding to the nonprofit sector is the NCSES Federal Funds Survey, which measures federal R&D obligations to nonprofits. These federal agencies' reported totals differ from the nonprofit reported R&D performance totals because the Federal Funds Survey measures obligations by federal fiscal year and the NPRA Survey measures expenditures by the nonprofit's fiscal year. However, the total from the Federal Funds Survey can be used for rough benchmarking of the federally funded R&D performance total on the FY 2016 NPRA Survey.

The Federal Funds Survey data show obligations to nonprofits of $6.7 billion in FY 2016 and $8.1 billion in FY 2017, for a 2-year average of $7.4 billion. The four alternate estimates of federal funded nonprofit R&D performance are higher, ranging between 24% and 55% higher than the total from the Federal Funds Survey.

All five federal estimates (four alternate estimates and the final estimate) are higher than the total from the Federal Funds Survey. However, at only 11% higher, the final nonprofit performer survey estimate is not significantly different from the total from the Federal Funds Survey.

The shares of the other sources of funds were relatively stable in each of the five estimates, pointing to the importance of benchmarking the federal estimate to increase accuracy of the overall number.

Another helpful comparison are the estimates of nonprofit R&D performance and funding from the NCSES publication National Patterns of R&D Resources. The final FY 2016 NPRA Survey estimate of $22.6 billion in R&D performed falls between the estimates from the National Patterns of R&D Resources for calendar year 2016 and 2017 ($21.3 and $23.3 billion respectively). However, the estimate for R&D funded by nonprofits was not as similar. The NPRA Survey estimate of funding for R&D performed both internally and externally was $14.2 billion in FY 2016. Estimates from the National Pattern of R&D Resources for calendar year 2016 and 2017 were almost 50% higher at $20.6 and $21.5 billion for 2016 and 2017, respectively. This may be due to the lower response rate from foundations and other likely funders impacting the quality of the final NPRA Survey estimates. More work needs to be done to ensure broader coverage and response of funding organizations in any future survey measuring nonprofit funding of R&D.

Assessing the NPRA Estimates

This section explains and illustrates some of the estimates from the NPRA Survey. Any comparisons made among estimates are done to aid in understanding and provide context. As stated in the disclaimer, data presented in this working paper do not meet the quality criteria outlined in NCSES's statistical standards. NCSES does not consider all the estimates in this report to be official statistics.

R&D Performed by Nonprofits

Nationally, nonprofit organizations spent an estimated $22.6 billion on R&D performed in house in FY 2016 (table A-1), which would be equivalent to 4.2% of the total spent on R&D in the United States in 2016.[4] When the survey was last conducted in 1997, nonprofits spent $7.3 billion on R&D, or 3% of the U.S. R&D total.

One of the largest funding sources for the FY 2016 expenditures was the federal government, contributing $8.3 billion, or 36%, to the total (figure A) (see section "Refinement of the final estimates" for details on comparable totals from the Federal Funds Survey). Nonprofits funded $6.7 billion (30%) of their research themselves and received an additional 16% ($3.5 billion) in funding from other foundations and nonprofits.

FIGURE A

Nonprofit research spending, by source of funds: FY 2016
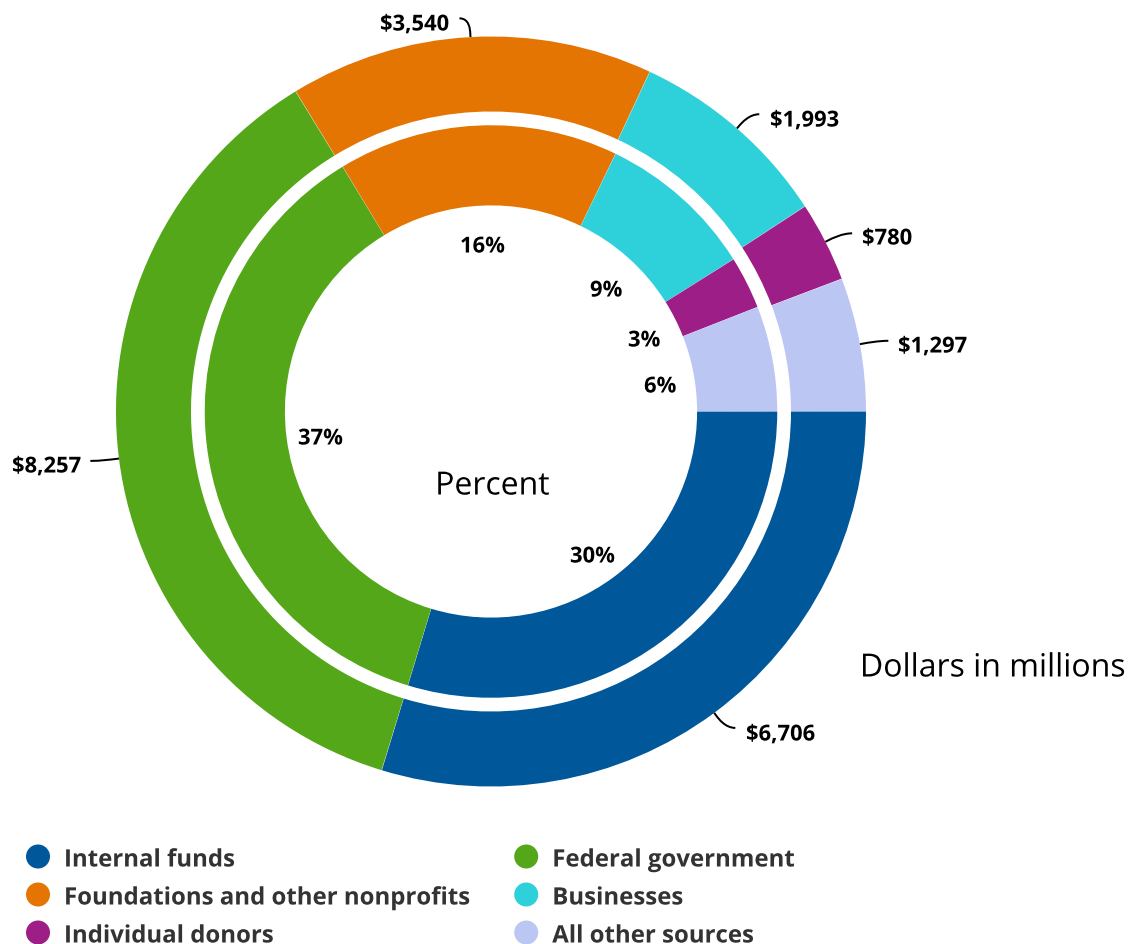
Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Of the $22.6 billion spent in FY 2016, health and medical nonprofits were responsible for 64%, or $14.6 billion (table A-1). Likewise, 68% of the total was spent on R&D within biological, biomedical, and health sciences (table A-2). The next highest percentage of the total (13%) was spent in the field of psychology and social sciences.

The FY 2016 survey asked nonprofits to characterize their R&D activities by type of R&D: basic research, applied research, or experimental development.[5] They reported 33% for basic research projects, 48% for applied research, and 18% for experimental development (figure B and table A-3). The proportion of basic versus applied research has shifted significantly since the last survey results in 1997, when nonprofits reported 55% of their total was basic research and 30% was applied research. The percentage reported for experimental development remained more stable (16% in 1997).

FIGURE B

Nonprofit research spending, by type of R&D and source of funding: FY 2016
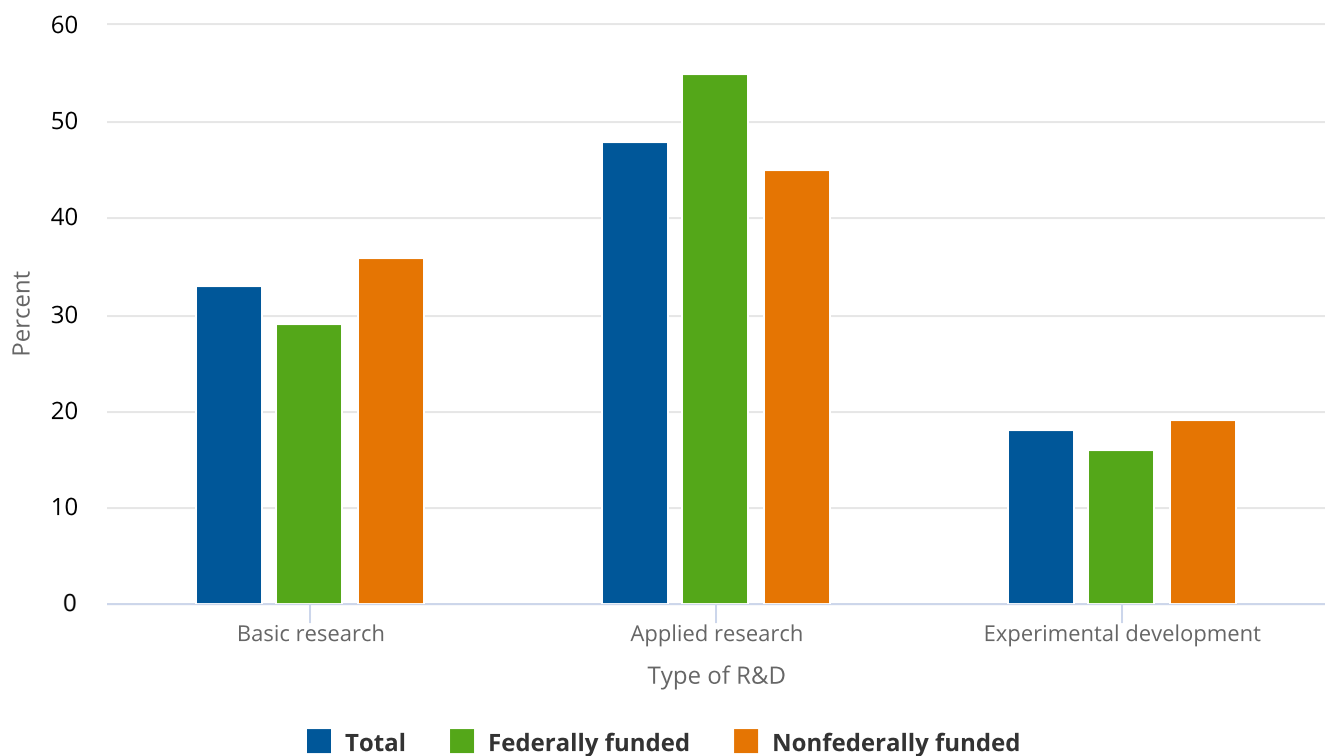

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

In FY 2016, U.S. nonprofits performing R&D employed 32,000 full-time equivalent (FTE) researchers and 52,000 technicians and support staff (table A-4), out of roughly 1,700,000 total FTEs. They reported receiving assistance with their R&D activities from nearly 26,000 unpaid volunteers and over 10,000 contract employees (both measured by headcount).

R&D Funded by Nonprofits

U.S. nonprofits provided an estimated $10.5 billion in R&D funding to others via grants or subcontracts in FY 2016 (table A-5). Over $8 billion was provided as grants or contracts for R&D activities managed by the funding recipients, the remainder was provided via subcontracts and subawards for work supporting the R&D performed by the nonprofits.

Almost half of the total funding (48%) came from the nonprofits themselves (figure C). The next two largest sources of funding were the federal government ($1.9 billion, or 18%) and individual donors ($1.5 billion, or 14%).

FIGURE C

Funds provided by nonprofit organizations to others for R&D, by original source of funds: FY 2016
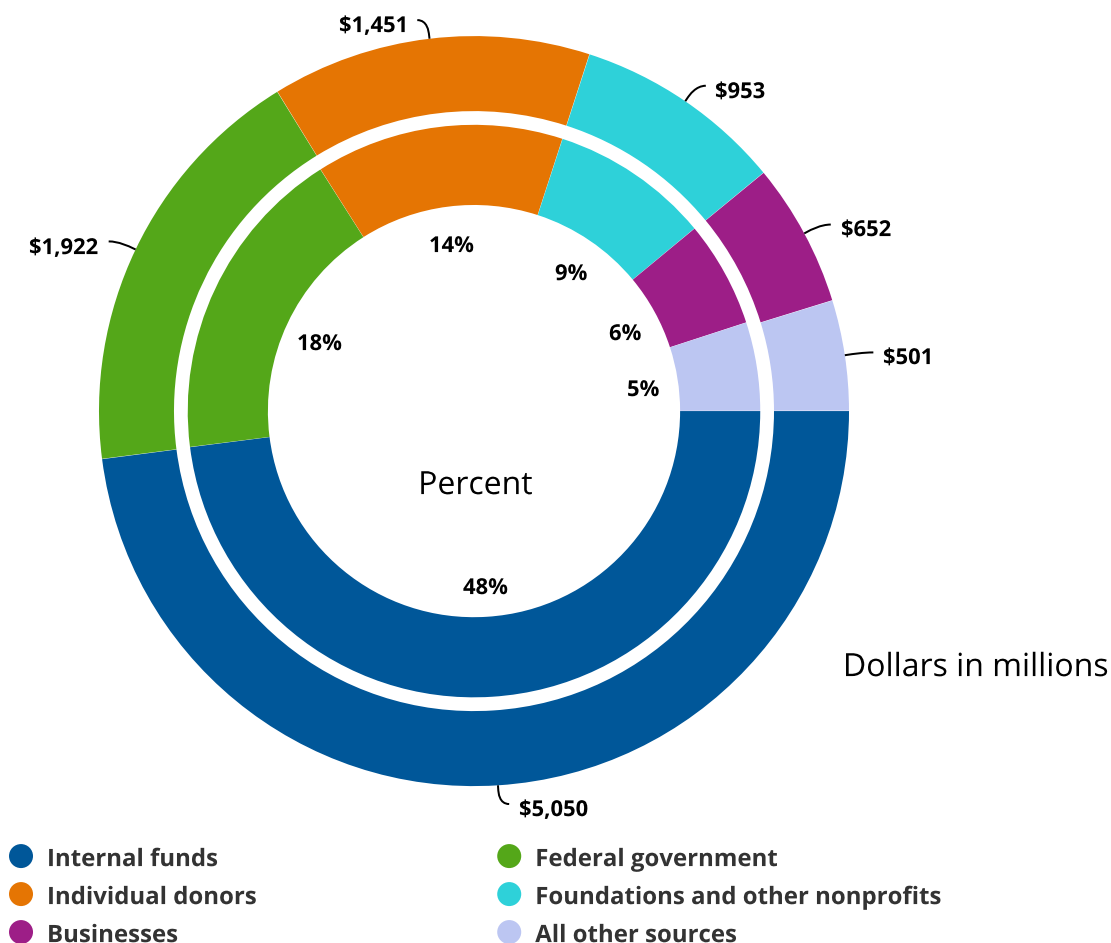
Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Half (49%) of the R&D performed by external organizations was characterized as basic research (figure D). There was a large difference in this ratio depending on the funding source. The majority of nonfederally funded R&D was characterized as basic research (55%), compared with only 22% of the federally funded R&D.

FIGURE D

Nonprofit research funding to external recipients, by type of R&D and source of funding: FY 2016
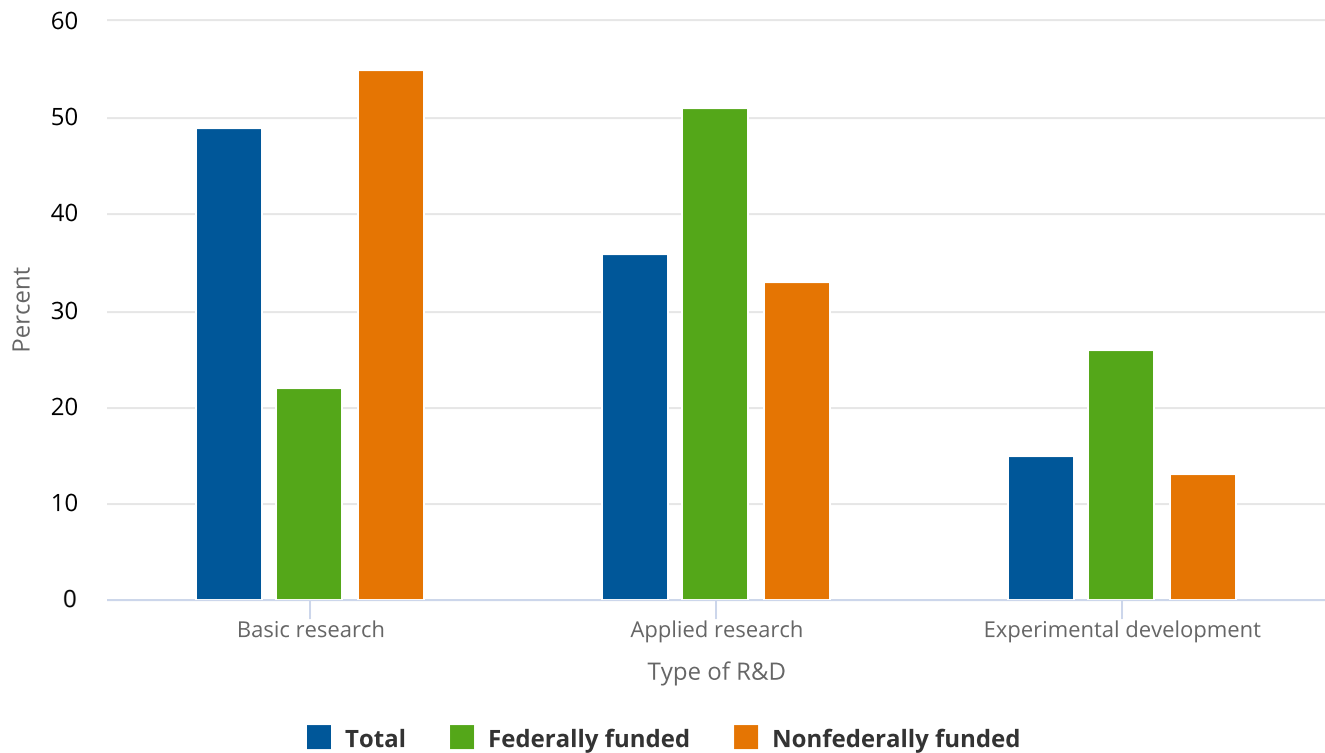
Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Of the types of organizations receiving the funding, 72% were universities or other educational entities and 17% were other nonprofits (table A-6). The remaining 10% of funding went to businesses (8%) and all other types of organizations (2%).

The majority (61%) of the R&D funding provided to external organizations was again in the field of biological, biomedical, and health sciences, at $6.4 billion. The next largest field was geosciences, atmospheric sciences, and ocean sciences, at $960 million (table A-8).

Lessons Learned and Considerations for the Next Nonprofit R&D Survey

The FY 2016 NPRA Survey was a multi-year project that began in 2013 with the development of the pilot survey and involved extensive input from and testing with the nonprofit community throughout the pilot test development and preparation for the FY 2016 survey. Given the challenge of surveying a population in which the majority of those surveyed did not have R&D activity and thus did not see the survey as salient, this effort had many successes that can be built upon for future surveys.

One of the major successes was the questionnaire content. Due to the development work, both the screener and the questionnaire were extremely well-received by respondents and no significant cognitive issues arose during the data collection period or the debriefing interviews. Respondents reported that the definitions and examples provided for R&D were exceptionally clear. There was also no significant item nonresponse because only questions which had been thoroughly cognitively tested were placed on the final questionnaire.

The key issues encountered for FY 2016 were in the areas of sample design and organization contact. The major sample design issue was the amount of unanticipated organizational duplication among sampling units, particularly for the hospital sector. This led to ad hoc consolidation and deactivation of units during data collection, which complicated the eventual weighting and variance estimation methodology.

Finding updated contact information for the organizations also proved more difficult than anticipated, as was reaching the correct offices even when contact information was available. Finally, the reluctance of many organizations to respond to any survey, given the present environment of declining response rates, was and will remain a major challenge.

Each of these issues contributed to a lower than desired response rate and nonresponse bias, which led to increased pressure on the final weighting methodology to deliver valid results. The next survey will need to achieve a higher response rate and have lower nonresponse bias to meet the NCSES criteria for official statistics.

To mitigate these issues for the next fielding of a nonprofit R&D survey, significant resources should be invested at the sampling stage to establish a clean, unduplicated sample with identified points of contact at each organization. These points of contact should be screened in advance to ensure they will be able to answer questions about their organization's R&D activity and to appoint a backup point of contact in case of staff turnover before fielding. To encourage response from the organizations who do not find the survey salient, more work should be done to find and incorporate topics that would be salient into the survey to incentivize response from those with no R&D activity.

Appendix A. Data Tables, with Imputation Rates and Relative Standard Errors

Table	Title
A-5SE	Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of agreement: FY 2016
A-6	Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of funded organization: FY 2016
A-6IM	Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of funded organization: FY 2016
A-6SE	Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of funded organization: FY 2016
A-7	Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and original source of funds: FY 2016
A-7IM	Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and original source of funds: FY 2016
A-7SE	Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and original source of funds: FY 2016
A-8	Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and field: FY 2016
A-8IM	Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and field: FY 2016
A-8SE	Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and field: FY 2016
A-9	Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization, source of funds, and type of R&D: FY 2016
A-9IM	Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization, source of funds, and type of R&D: FY 2016
A-9SE	Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

TABLE A-1

Total expenditures for R&D performed by nonprofit organizations, by type of nonprofit organization and source of funds: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	All R&D expenditures	Source of funds								
		Internal funds	Federal government	State and local government	Businesses	Universities	Foundations	All other nonprofits	Individual donors	Other
All organizations	22,572,535	6,706,461	8,256,783	475,380	1,992,502	330,963	2,957,181	583,077	779,929	490,259
Health and medical	14,557,442	4,904,404	5,486,313	331,015	1,407,760	277,775	1,022,882	334,441	592,945	199,907
International, foreign affairs, and national security	378,943	S	64,681	S	20,843	7,253	117,262	83,735	24,614	S
Science and technology	1,880,278	242,707	1,120,301	17,996	302,812	19,329	106,782	27,457	24,834	18,061
Other nonprofit organizations	5,755,873	1,558,751	1,585,489	122,468	261,087	26,607	S	137,444	137,535	216,235

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-1IM

Imputation rates for R&D performed by nonprofit organizations, by type of nonprofit organization and source of funds: FY 2016

(Percent)

Type of nonprofit organization[a]	All R&D expenditures	Source of funds								
		Internal funds	Federal government	State and local government	Businesses	Universities	Foundations	All other nonprofits	Individual donors	Other
All organizations	48	53	47	56	51	51	50	53	50	58
Health and medical	46	51	46	57	52	51	50	48	47	56
International, foreign affairs, and national security	60	64	62	64	63	55	62	64	64	56
Science and technology	30	35	32	42	26	42	38	32	41	40
Other nonprofit organizations	58	63	59	53	77	58	50	64	61	61

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-1SE

Relative standard errors for R&D performed by nonprofit organizations, by type of nonprofit organization and source of funds: FY 2016

(Percent)

Type of nonprofit organization[a]	All R&D expenditures	Source of funds								
		Internal funds	Federal government	State and local government	Businesses	Universities	Foundations	All other nonprofits	Individual donors	Other
All organizations	13	11	12	11	12	31	34	20	14	15
Health and medical	16	14	16	14	12	37	14	32	16	17
International, foreign affairs, and national security	38	S	31	S	29	47	26	36	43	S
Science and technology	39	23	26	30	47	36	22	21	24	34
Other nonprofit organizations	30	19	16	23	29	27	S	19	33	26

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-2

Total expenditures for R&D performed by nonprofit organizations, by type of nonprofit organization and field: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	All R&D expenditures	Science						Engineering	Non-S&E
		Agricultural sciences and natural resources and conservation	Biological, biomedical, and health sciences	Geosciences, atmospheric sciences, and ocean sciences	Mathematics, statistics, and computer and information sciences	Physical sciences	Psychology and social sciences		
All organizations	22,572,535	981,586	15,290,337	429,002	S	368,664	2,843,689	1,101,236	967,246
Health and medical	14,557,442	S	14,065,573	0	112,090	1,908	187,879	55,180	133,644
International, foreign affairs, and national security	378,943	69,391	209,765	26,700	0	0	70,920	0	S
Science and technology	1,880,278	S	293,765	122,881	126,457	310,169	118,360	718,188	41,186
Other nonprofit organizations	5,755,873	761,756	721,234	279,420	S	56,587	2,466,530	327,868	790,251

S = suppressed for reliability; relative standard error exceeds publication standards.

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-2IM

Imputation rates for R&D performed by nonprofit organizations, by type of nonprofit organization and field: FY 2016

(Percent)

| Type of nonprofit organization[a] | All R&D expenditures | Science | | | | | | Engineering | Non-S&E |
		Agricultural sciences and natural resources and conservation	Biological, biomedical, and health sciences	Geosciences, atmospheric sciences, and ocean sciences	Mathematics, statistics, and computer and information sciences	Physical sciences	Psychology and social sciences		
All organizations	48	64	50	52	75	39	74	41	63
Health and medical	46	66	49	0	47	59	54	48	67
International, foreign affairs, and national security	60	59	61	60	0	0	59	0	60
Science and technology	30	43	40	37	43	33	27	26	38
Other nonprofit organizations	58	69	69	58	95	73	79	74	64

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

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TABLE A-2SE

Relative standard errors for R&D performed by nonprofit organizations, by type of nonprofit organization and field: FY 2016

(Percent)

Type of nonprofit organization[a]	All R&D expenditures	Science						Engineering	Non-S&E
		Agricultural sciences and natural resources and conservation	Biological, biomedical, and health sciences	Geosciences, atmospheric sciences, and ocean sciences	Mathematics, statistics, and computer and information sciences	Physical sciences	Psychology and social sciences		
All organizations	13	18	11	21	S	39	33	26	17
Health and medical	16	S	12	0	27	24	34	27	36
International, foreign affairs, and national security	38	37	31	40	0	0	35	0	S
Science and technology	39	S	19	22	31	46	43	38	41
Other nonprofit organizations	30	20	19	30	S	32	38	28	19

S = suppressed for reliability; relative standard error exceeds publication standards.

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-3

Total expenditures for R&D performed by nonprofit organizations, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	Total				Federal				Nonfederal			
	All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development
All organizations	22,572,535	7,548,391	10,939,765	4,084,379	8,256,783	2,400,950	4,541,427	1,314,407	14,315,752	5,147,441	6,398,338	2,769,973
Health and medical	14,557,442	6,116,682	5,601,793	2,838,966	5,486,313	1,847,743	2,834,210	804,360	9,071,129	4,268,939	2,767,583	2,034,607
International, foreign affairs, and national security	378,943	S	219,255	152,631	64,681	S	34,011	S	314,262	3,359	185,243	125,659
Science and technology	1,880,278	564,041	790,163	526,074	1,120,301	299,388	571,569	249,345	S	264,654	218,594	276,729
Other nonprofit organizations	5,755,873	860,611	4,328,554	566,707	1,585,489	250,122	1,101,637	233,730	4,170,384	610,489	3,226,917	332,977

S = suppressed for reliability; relative standard error exceeds publication standards.

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-3IM

Imputation rates for R&D performed by nonprofit organizations, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

(Percent)

Type of nonprofit organization[a]	Total				Federal				Nonfederal			
	All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development
All organizations	48	58	57	57	47	57	55	54	53	58	59	58
Health and medical	46	58	59	60	46	57	57	58	52	59	60	61
International, foreign affairs, and national security	60	53	61	60	62	53	62	63	60	52	61	59
Science and technology	30	41	30	27	32	44	28	27	32	38	33	27
Other nonprofit organizations	58	65	60	67	59	69	62	68	58	63	60	66

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-3SE

Relative standard errors for R&D performed by nonprofit organizations, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

(Percent)

Type of nonprofit organization[a]	Total				Federal				Nonfederal			
	All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development	All R&D expenditures	Basic research	Applied research	Experimental development
All organizations	13	13	13	12	12	15	13	13	18	14	17	13
Health and medical	16	15	13	15	16	19	18	17	20	16	12	15
International, foreign affairs, and national security	38	S	26	27	31	S	38	S	43	47	25	30
Science and technology	39	21	33	40	26	21	39	35	S	25	23	49
Other nonprofit organizations	30	16	29	20	16	16	21	20	38	20	32	23

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-4

Personnel working on R&D activities at nonprofit organizations, by type of nonprofit organization and type of employee: FY 2016

(Number)

Type of nonprofit organization[a]	Employees (FTEs)			Other workers (headcount)	
	Total	Researchers	Technicians and other personnel	Contract employees	Volunteers
All organizations	87,010	32,475	52,402	10,372	25,945
Health and medical	57,569	15,685	39,751	1,465	4,704
International, foreign affairs, and national security	1,068	702	366	61	S
Science and technology	9,084	5,259	3,825	S	9,334
Other nonprofit organizations	19,288	10,828	8,460	6,490	11,757

S = suppressed for reliability; relative standard error exceeds publication standards.

FTEs = full-time equivalents.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-4IM

Imputation rates for personnel working on R&D activities at nonprofit organizations, by type of nonprofit organization and type of employee: FY 2016

(Percent)

Type of nonprofit organization[a]	Employees (FTEs)			Other workers (headcount)	
	Total	Researchers	Technicians and other personnel	Contract employees	Volunteers
All organizations	27	30	26	42	38
Health and medical	24	26	24	42	47
International, foreign affairs, and national security	51	51	51	36	53
Science and technology	30	30	30	52	23
Other nonprofit organizations	34	34	34	38	46

FTEs = full-time equivalents.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-4SE

Relative standard errors for personnel working on R&D activities at nonprofit organizations, by type of nonprofit organization and type of employee: FY 2016

(Percent)

Type of nonprofit organization[a]	Employees (FTEs)			Other workers (headcount)	
	Total	Researchers	Technicians and other personnel	Contract employees	Volunteers
All organizations	13	13	16	29	21
Health and medical	17	16	19	24	46
International, foreign affairs, and national security	33	32	35	40	S
Science and technology	26	29	25	S	41
Other nonprofit organizations	28	27	28	42	27

S = suppressed for reliability; relative standard error exceeds publication standards.

FTEs = full-time equivalents.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-5

Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of agreement: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	All funds for R&D	R&D grants or contracts	Subcontracts and subawards
All organizations	10,528,134	8,134,120	2,394,015
Health and medical	4,564,632	3,456,215	1,108,417
International, foreign affairs, and national security	254,382	S	200,374
Science and technology	710,899	409,780	301,119
Other nonprofit organizations	4,998,221	4,214,116	784,104

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-5IM

Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of agreement: FY 2016

(Percent)

Type of nonprofit organization[a]	All funds for R&D	R&D grants or contracts	Subcontracts and subawards
All organizations	58	60	53
Health and medical	52	55	44
International, foreign affairs, and national security	70	63	72
Science and technology	50	55	44
Other nonprofit organizations	64	65	66

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-5SE

Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of agreement: FY 2016

(Percent)

Type of nonprofit organization[a]	All funds for R&D	R&D grants or contracts	Subcontracts and subawards
All organizations	18	21	19
Health and medical	21	22	30
International, foreign affairs, and national security	33	S	30
Science and technology	26	31	31
Other nonprofit organizations	32	37	36

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-6

Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of funded organization: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	All funded organizations	Universities and educational entities	Businesses	Other nonprofit organizations	Other
All organizations	10,528,134	7,596,196	869,874	1,829,889	232,176
Health and medical	4,564,632	3,754,443	201,097	485,310	123,782
International, foreign affairs, and national security	254,382	87,933	60,578	94,415	S
Science and technology	710,899	383,149	244,306	75,055	8,388
Other nonprofit organizations	4,998,221	3,370,671	363,892	1,175,109	88,548

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-6IM

Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of funded organization: FY 2016

(Percent)

Type of nonprofit organization[a]	All funded organizations	Universities and educational entities	Businesses	Other nonprofit organizations	Other
All organizations	58	59	59	62	55
Health and medical	52	53	59	53	49
International, foreign affairs, and national security	70	85	69	60	57
Science and technology	50	53	47	48	52
Other nonprofit organizations	64	65	64	67	63

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-6SE

Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and type of funded organization: FY 2016

(Percent)

Type of nonprofit organization[a]	All funded organizations	Universities and educational entities	Businesses	Other nonprofit organizations	Other
All organizations	18	13	13	13	18
Health and medical	21	15	24	17	31
International, foreign affairs, and national security	33	31	47	35	S
Science and technology	26	19	26	18	31
Other nonprofit organizations	32	23	22	19	17

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Survey of Nonprofit Research Activities, FY 2016.

TABLE A-7

Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and original source of funds: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	All funds for R&D	Source of funds								
		Internal funds	Federal government	State and local government	Businesses	Universities	Foundations	All other nonprofits	Individual donors	Other
All organizations	10,528,134	5,050,277	1,921,504	238,467	651,918	58,192	806,515	146,177	1,450,523	204,560
Health and medical	4,564,632	1,420,407	872,134	99,473	409,025	8,897	330,694	47,103	1,349,212	27,688
International, foreign affairs, and national security	254,382	S	131,175	S	8,908	158	66,548	40,161	1,513	S
Science and technology	710,899	82,031	376,706	S	74,900	47,940	14,571	5,631	1,609	0
Other nonprofit organizations	4,998,221	3,546,582	541,489	31,448	159,086	1,198	394,702	53,282	98,190	172,244

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-7IM

Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and original source of funds: FY 2016

(Percent)

Type of nonprofit organization[a]	All funds for R&D	Source of funds								
		Internal funds	Federal government	State and local government	Businesses	Universities	Foundations	All other nonprofits	Individual donors	Other
All organizations	58	62	53	60	57	45	58	61	62	68
Health and medical	52	53	43	63	57	40	52	55	62	47
International, foreign affairs, and national security	70	54	83	57	59	57	57	57	57	57
Science and technology	50	60	48	56	45	45	64	44	54	100
Other nonprofit organizations	64	65	65	64	63	68	64	72	56	71

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-7SE

Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and original source of funds: FY 2016

(Percent)

Type of nonprofit organization[a]	All funds for R&D	Source of funds								
		Internal funds	Federal government	State and local government	Businesses	Universities	Foundations	All other nonprofits	Individual donors	Other
All organizations	18	20	12	32	17	34	13	21	19	25
Health and medical	21	17	22	37	24	39	17	40	21	27
International, foreign affairs, and national security	33	S	30	S	38	41	43	44	44	S
Science and technology	26	44	19	S	37	40	22	23	28	0
Other nonprofit organizations	32	27	19	30	29	40	21	33	25	29

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-8

Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and field: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	All funds for R&D	Science						Engineering	Non-S&E
		Agricultural sciences and natural resources and conservation	Biological, biomedical, and health sciences	Geosciences, atmospheric sciences, and ocean sciences	Mathematics, statistics, and computer and information sciences	Physical science	Psychology and social sciences		
All organizations	10,528,134	379,742	6,435,535	959,508	599,127	387,297	679,540	497,150	590,234
Health and medical	4,564,632	S	4,256,278	0	22,659	216	56,765	15,196	149,298
International, foreign affairs, and national security	254,382	58,365	141,091	8,971	0	0	31,420	S	901
Science and technology	710,899	22,309	97,709	46,334	49,011	202,592	26,141	260,102	6,701
Other nonprofit organizations	4,998,221	234,849	1,940,458	904,203	S	184,489	565,214	208,218	433,333

S = suppressed for reliability; relative standard error exceeds publication standards.

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-8IM

Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and field: FY 2016

(Percent)

Type of nonprofit organization[a]	All funds for R&D	Science						Engineering	Non-S&E
		Agricultural sciences and natural resources and conservation	Biological, biomedical, and health sciences	Geosciences, atmospheric sciences, and ocean sciences	Mathematics, statistics, and computer and information sciences	Physical science	Psychology and social sciences		
All organizations	58	68	57	63	63	57	64	58	61
Health and medical	52	73	52	0	46	49	56	52	56
International, foreign affairs, and national security	70	71	71	57	0	0	57	100	54
Science and technology	50	53	61	49	50	52	46	45	77
Other nonprofit organizations	64	68	68	63	65	62	65	71	63

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-8SE

Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization and field: FY 2016

(Percent)

Type of nonprofit organization[a]	All funds for R&D	Science						Engineering	Non-S&E
		Agricultural sciences and natural resources and conservation	Biological, biomedical, and health sciences	Geosciences, atmospheric sciences, and ocean sciences	Mathematics, statistics, and computer and information sciences	Physical science	Psychology and social sciences		
All organizations	18	22	11	42	50	17	17	17	14
Health and medical	21	S	14	0	23	32	20	33	33
International, foreign affairs, and national security	33	35	43	45	0	0	44	S	50
Science and technology	26	36	22	20	35	24	36	22	35
Other nonprofit organizations	32	19	20	45	S	22	20	28	15

S = suppressed for reliability; relative standard error exceeds publication standards.

S&E = science and engineering.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-9

Funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

(Dollars in thousands)

Type of nonprofit organization[a]	Total				Federal				Nonfederal			
	All funds for R&D	Basic research	Applied research	Experimental development	All funds for R&D	Basic research	Applied research	Experimental development	All funds for R&D	Basic research	Applied research	Experimental development
All organizations	10,528,134	5,142,432	3,800,364	1,585,339	1,921,504	429,564	985,592	506,348	8,606,630	4,712,868	2,814,772	1,078,990
Health and medical	4,564,632	1,905,679	1,719,350	939,604	872,134	221,089	388,291	262,754	3,692,498	1,684,590	1,331,059	676,850
International, foreign affairs, and national security	254,382	S	84,468	141,841	131,175	S	30,153	99,178	123,207	S	54,315	42,663
Science and technology	710,899	312,050	317,675	81,173	376,706	141,676	178,508	56,522	S	170,374	139,167	24,652
Other nonprofit organizations	4,998,221	2,896,630	1,678,871	422,720	541,489	64,954	388,640	87,894	4,456,732	2,831,675	1,290,231	334,826

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
The Nonprofit Research Activities (NPRA) Survey data do not meet the quality criteria outlined in the National Center for Science and Engineering Statistics' (NCSES's) statistical standards. NCSES does not consider all the estimates in this table to be official statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-9IM

Imputation rates for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

(Percent)

Type of nonprofit organization[a]	Total				Federal				Nonfederal			
	All funds for R&D	Basic research	Applied research	Experimental development	All funds for R&D	Basic research	Applied research	Experimental development	All funds for R&D	Basic research	Applied research	Experimental development
All organizations	58	62	63	61	53	57	59	62	60	63	64	61
Health and medical	52	57	59	57	43	56	58	56	55	57	60	58
International, foreign affairs, and national security	70	59	66	75	83	83	83	83	57	57	57	57
Science and technology	50	54	48	46	48	52	45	46	53	55	52	45
Other nonprofit organizations	64	66	70	67	65	66	65	68	65	66	71	67

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):
Imputation rates are calculated as a combination of imputation and reweighting to account for nonresponse.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE A-9SE

Relative standard errors for funds provided by nonprofit organizations to others for R&D, by type of nonprofit organization, source of funds, and type of R&D: FY 2016

(Percent)

Type of nonprofit organization[a]	Total				Federal				Nonfederal			
	All funds for R&D	Basic research	Applied research	Experimental development	All funds for R&D	Basic research	Applied research	Experimental development	All funds for R&D	Basic research	Applied research	Experimental development
All organizations	18	19	9	18	12	13	13	18	22	20	11	24
Health and medical	21	15	15	29	22	17	21	32	26	16	17	36
International, foreign affairs, and national security	33	S	31	29	30	S	33	31	48	S	40	37
Science and technology	26	22	27	26	19	28	30	29	S	28	38	30
Other nonprofit organizations	32	32	14	20	19	19	22	24	36	32	15	24

S = suppressed for reliability; relative standard error exceeds publication standards.

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Appendix B. Technical Tables

Table	Title
T-1	Response for the Nonprofit Research Activities Survey, by survey form, sampling stratum, and response type (unweighted): FY 2016
T-2	Response rates for the Nonprofit Research Activities Survey, by type of nonprofit organization and response: FY 2016
T-3	Response rates for the Nonprofit Research Activities Survey, by survey item: FY 2016

TABLE T-1

Response for the Nonprofit Research Activities Survey, by survey form, sampling stratum, and response type (unweighted): FY 2016

(Number)

Survey form and sampling stratum	Sampled organizations[a]	Overall response						Performer response		Funder response	
		Total responses	Does not perform or fund R&D activity	Performs R&D activity	Funds R&D activity	Performs and funds R&D activity	Response rate (%)	Total responses[b]	Response rate (%)	Total responses[c]	Response rate (%)
All survey forms	6,071	2,919	2,118	238	273	290	48.1	2,985	49.2	3,074	50.6
Likely performers and funders	154	95	16	9	19	51	61.7	96	62.3	97	63.0
Likely performers	1,184	567	242	128	39	158	47.9	571	48.2	592	50.0
Likely funders	919	388	176	2	186	24	42.2	423	46.0	392	42.7
Hospitals	1,092	378	320	47	0	11	34.6	380	34.8	441	40.4
Research institutes	112	49	27	6	7	9	43.8	54	48.2	52	46.4
Form 990 (likelihood of R&D performance)	2,296	1,287	1,191	46	17	33	56.1	1,300	56.6	1,343	58.5
High likelihood	505	253	214	14	11	14	50.1	257	50.9	271	53.7
Moderate likelihood	616	319	289	13	4	13	51.8	325	52.8	341	55.4
Low likelihood	1,175	715	688	19	2	6	60.9	718	61.1	731	62.2
Form 990-PF (likelihood of R&D funding)	314	155	146	0	5	4	49.4	161	51.3	157	50.0
High likelihood	93	46	42	0	3	1	49.5	46	49.5	48	51.6
Moderate likelihood	90	36	34	0	1	1	40.0	39	43.3	36	40.0
Low likelihood	131	73	70	0	1	2	55.7	76	58.0	73	55.7
Standard survey form	3,480	1,843	1,355	122	181	185	53.0	1,888	54.3	1,902	54.7
Likely performers and funders	101	62	10	8	12	32	61.4	62	61.4	63	62.4
Likely performers	751	394	175	84	29	106	52.5	396	52.7	409	54.5
Likely funders	738	291	154	1	122	14	39.4	315	42.7	294	39.8
Research institutes	73	32	21	2	3	6	43.8	35	47.9	35	47.9
Form 990 (likelihood of R&D performance)	1,519	916	856	27	10	23	60.3	927	61.0	951	62.6
High likelihood	340	178	154	9	7	8	52.4	181	53.2	191	56.2
Moderate likelihood	340	202	182	8	2	10	59.4	207	60.9	212	62.4
Low likelihood	839	536	520	10	1	5	63.9	539	64.2	548	65.3

TABLE T-1

Response for the Nonprofit Research Activities Survey, by survey form, sampling stratum, and response type (unweighted): FY 2016

(Number)

Survey form and sampling stratum	Sampled organizations[a]	Overall response						Performer response		Funder response	
		Total responses	Does not perform or fund R&D activity	Performs R&D activity	Funds R&D activity	Performs and funds R&D activity	Response rate (%)	Total responses[b]	Response rate (%)	Total responses[c]	Response rate (%)
Form 990-PF (likelihood of R&D funding)	298	148	139	0	5	4	49.7	153	51.3	150	50.3
High likelihood	86	43	39	0	3	1	50.0	43	50.0	45	52.3
Moderate likelihood	85	34	32	0	1	1	40.0	37	43.5	34	40.0
Low likelihood	127	71	68	0	1	2	55.9	73	57.5	71	55.9
Health survey form	2,591	1,076	763	116	92	105	41.5	1,097	42.3	1,172	45.2
Likely performers and funders	53	33	6	1	7	19	62.3	34	64.2	34	64.2
Likely performers	433	173	67	44	10	52	40.0	175	40.4	183	42.3
Likely funders	181	97	22	1	64	10	53.6	108	59.7	98	54.1
Hospitals	1,092	378	320	47	0	11	34.6	380	34.8	441	40.4
Research institutes	39	17	6	4	4	3	43.6	19	48.7	17	43.6
Form 990 (likelihood of R&D performance)	777	371	335	19	7	10	47.7	373	48.0	392	50.5
High likelihood	165	75	60	5	4	6	45.5	76	46.1	80	48.5
Moderate likelihood	276	117	107	5	2	3	42.4	118	42.8	129	46.7
Low likelihood	336	179	168	9	1	1	53.3	179	53.3	183	54.5
Form 990-PF (likelihood of R&D funding)	16	7	7	0	0	0	43.8	8	50.0	7	43.8
High likelihood	7	3	3	0	0	0	42.9	3	42.9	3	42.9
Moderate likelihood	5	2	2	0	0	0	40.0	2	40.0	2	40.0
Low likelihood	4	2	2	0	0	0	50.0	3	75.0	2	50.0

[a] The total number of sampled organizations excludes those organizations that were removed from the surveyed population because they were determined to be defunct or out of sample for other reasons.

[b] Total performer responses includes 339 organizations that funded but did not perform R&D in FY 2016.

[c] Total funder responses includes 393 organizations that performed but did not fund R&D in FY 2016.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE T-2

Response rates for the Nonprofit Research Activities Survey, by type of nonprofit organization and response: FY 2016

(Number)

Type of nonprofit organization[a]	Number in sample	Overall response				Performer response			
		Total responses	Complete responses[b]	Partial responses	Response rate (%)	Total responses	Complete responses[c]	Partial responses	Response rate (%)
All organizations	6,071	2,919	2,792	127	48.1	2,985	2,896	89	49.2
Animal - related	58	35	31	4	60.3	35	31	4	60.3
Arts, culture, and humanities	228	151	145	6	66.2	152	146	6	66.7
Civil rights, social action, and advocacy	28	12	12	0	42.9	12	12	0	42.9
Community improvement and capacity building	187	89	89	0	47.6	91	91	0	48.7
Crime and legal - related	52	27	27	0	51.9	28	28	0	53.8
Education	225	125	119	6	55.6	125	122	3	55.6
Employment	122	71	71	0	58.2	72	72	0	59.0
Environment	234	128	121	7	54.7	128	124	4	54.7
Food, agriculture, and nutrition	80	44	44	0	55.0	44	44	0	55.0
Health and medical	2,429	984	919	65	40.5	1,005	952	53	41.4
Housing and shelter	97	64	64	0	66.0	65	65	0	67.0
Human services	503	319	313	6	63.4	319	314	5	63.4
International, foreign affairs, and national security	147	65	64	1	44.2	67	66	1	45.6
Mental health and crisis intervention	137	83	81	2	60.6	83	83	0	60.6
Mutual and membership benefit	26	10	10	0	38.5	10	10	0	38.5
Philanthropy, voluntarism, and grantmaking foundations	919	372	356	16	40.5	401	401	0	43.6
Public and societal benefit	111	62	59	3	55.9	65	63	2	58.6
Public safety, disaster preparedness, and relief	16	10	9	1	62.5	10	9	1	62.5
Recreation and sports	74	45	45	0	60.8	45	45	0	60.8
Religion - related	69	38	37	1	55.1	38	37	1	55.1
Science and technology	238	135	128	7	56.7	138	131	7	58.0
Social science	59	28	26	2	47.5	30	28	2	50.8
Youth development	31	21	21	0	67.7	21	21	0	67.7
Unknown	1	1	1	0	100.0	1	1	0	100.0

[a] Nonprofit organizations are classified using the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

[b] Includes 2,118 organizations that reported that they did not perform or fund R&D activities in FY 2016.

[c] Includes 2,118 organizations that reported that they did not perform or fund R&D activities in FY 2016 and 339 organizations that reported that they only fund R&D activities.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

TABLE T-3

Response rates for the Nonprofit Research Activities Survey, by survey item: FY 2016

(Number)

Survey item[a]	All respondents	Total item responses	Complete item responses	Partial item responses	Item nonresponses	Response rate (%)
Item 4	801	779	779	0	22	97.3
Item 5	801	799	799	0	2	99.8
Item 6	801	780	780	0	21	97.4
Item 7	801	801	801	0	0	100.0
Item 8	801	801	801	0	0	100.0
Organizations performing, not funding, R&D activities[b]						
Item 9	238	238	238	0	0	100.0
Item 10	238	230	226	4	8	96.6
Item 11	238	229	226	3	9	96.2
Item 12	238	224	220	4	14	94.1
Item 13	238	219	216	3	19	92.0
Item 14	238	233	227	6	5	97.9
Item 15	238	233	231	2	5	97.9
Organizations funding, not performing, R&D activities[c]						
Item 16	273	273	269	4	0	100.0
Item 17	273	269	269	0	4	98.5
Item 18	273	269	268	1	4	98.5
Item 19	273	270	264	6	3	98.9
Item 20	273	270	248	22	3	98.9
Organizations performing and funding R&D activities[d]						
Item 9	290	290	290	0	0	100.0
Item 10	290	284	281	3	6	97.9
Item 11	290	283	281	2	7	97.6
Item 12	290	273	270	3	17	94.1
Item 13	290	277	271	6	13	95.5
Item 14	290	286	276	10	4	98.6
Item 15	290	286	283	3	4	98.6
Item 16	290	290	285	5	0	100.0
Item 17	290	278	275	3	12	95.9
Item 18	290	278	278	0	12	95.9
Item 19	290	280	277	3	10	96.6
Item 20	290	268	265	3	22	92.4

[a] Survey items 1–3 asked for general organization information and are excluded from these counts.

[b] Organizations that perform, but do not fund, R&D activities (reported yes on Item 7, no on Item 8) were only asked to complete Items 9–15.

[c] Organizations that fund, but do not perform, R&D activities (reported no on Item 7, yes on Item 8) were only asked to complete Items 16–20.

[d] Organizations performing and funding R&D activities (reported yes on both Items 7 and 8) were asked to complete all Items 9–20.

Source(s):
National Center for Science and Engineering Statistics, Nonprofit Research Activities Survey, FY 2016.

Notes

1 Reports detailing the pilot NPRA Survey and subsequent revisions to the FY 2016 survey are available from the survey manager.

2 See https://learn.guidestar.org/help/irs-subsection-codes for definitions of the subsection codes for tax-exempt organizations.

3 See https://www.irs.gov/charities-non-profits/form-990-series-which-forms-do-exempt-organizations-file-filing-phase-in for more information on the different versions of Form 990.

4 See https://www.nsf.gov/statistics/2020/nsf20309/ for the latest statistics from National Patterns of R&D Resources on total U.S. R&D performance and source of funding. The model-based estimates from National Patterns of R&D Resources for nonprofit R&D performance in 2016 was $21.3 billion, or 4.1% of the U.S. total.

5 To view the definitions provided to the respondents, see p.10 of the questionnaire at https://www.nsf.gov/statistics/srvynpra/surveys/2016-npra-survey.pdf .

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