



National Center for Science and
Engineering Statistics

Nonprofit Research Activities: FY 2022

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General Notes

These tables present the results of the Nonprofit Research Activities (NPRA) FY 2022 module of the 2023 Annual Business Survey, conducted by the Census Bureau for the National Center for Science and Engineering Statistics (NCSES) within the U.S. National Science Foundation.

NCSES has reviewed this product for unauthorized disclosure of confidential information and approved its release (NCSES-DRN24-060).

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TABLE 1

Nonprofit organizations, by type of nonprofit organization and R&D activity: FY 2022

(Number)

Type of nonprofit organization ^a	All organizations	Organizations with R&D activity	Organizations without R&D activity
All organizations	42,164	2,662	39,502
Healthcare	23,217	717	22,499
Science and technology	659	516	143
Other nonprofit organizations	18,288	1,429	16,859

^a Nonprofit organizations are classified using the 2017 North American Industry Classification System code that accounts for the majority of their payroll. This classification may differ from the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

TABLE 2

Total expenses of nonprofit organizations, by type of nonprofit organization and R&D activity: FY 2022

(Dollars in thousands)

Type of nonprofit organization ^a	All organizations	Organizations with R&D activity	Organizations without R&D activity
All organizations	1,536,236,382	857,790,377	678,446,006
Healthcare	1,269,924,609	787,218,247	482,706,362
Science and technology	23,004,434	20,962,916	2,041,518
Other nonprofit organizations	243,307,339	49,609,214	193,698,125

^a Nonprofit organizations are classified using the 2017 North American Industry Classification System code that accounts for the majority of their payroll. This classification may differ from the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

TABLE 3

Total expenditures for R&D performed by nonprofit organizations, by type of nonprofit organization and type of cost: FY 2022

(Dollars in thousands)

Type of nonprofit organization ^a	All R&D expenditures	Type of cost						
		Salaries, wages, and fringe benefits	Contract employees	Depreciation	Expensed machinery and equipment	Materials and supplies	All other costs	
All organizations	28,052,093	14,521,246	1,070,777	801,959	202,330	2,747,918	8,707,864	
Healthcare	14,658,216	7,684,554	432,962	314,008	41,145	1,819,429	4,366,119	
Science and technology	11,260,286	5,735,872	265,837	451,960	74,096	864,539	3,867,982	
Other nonprofit organizations	2,133,591	1,100,819	371,978	35,991	87,089	63,951	473,763	

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

TABLE 4

Total expenditures for R&D performed by nonprofit organizations, by source of funds and type of nonprofit organization: FYs 2020–22

(Dollars in thousands)

Source of funds	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
All R&D expenditures	26,709,319	13,964,718	10,368,712	2,375,889	27,029,919	13,441,110	11,166,124	2,422,685	28,052,093	14,658,216	11,260,286	2,133,591
Internal funds	5,974,525	3,982,068	1,438,495	553,963	7,535,597	4,675,654	1,887,536	972,408	7,568,079	4,457,060	2,170,501	940,518
Federal government	11,809,428	5,248,716	6,099,287	461,425	11,481,142	4,597,484	6,449,939	433,718	11,648,446	4,989,394	6,393,032	266,020
State and local government	568,241	188,399	276,317	103,524	326,931	102,549	205,929	18,453	414,986	133,182	220,959	60,845
Businesses	3,070,212	1,640,786	865,747	563,679	2,993,996	1,524,987	1,090,484	378,526	3,592,572	2,337,717	1,027,669	227,186
Universities	302,677	175,211	118,667	8,799	274,711	183,599	84,965	6,147	436,839	346,287	85,108	5,444
Foundations and all other nonprofits	3,060,050	1,360,317	1,180,112	519,621	2,394,919	1,091,737	948,416	354,766	2,241,716	1,100,077	829,507	312,131
Individual donors	1,360,179	969,250	247,560	143,369	1,381,656	956,826	291,985	132,845	1,335,703	899,926	237,257	198,520
Other	564,006	399,971	142,527	21,509	640,968	308,274	206,871	125,822	813,752	394,573	296,252	122,928

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

^a Nonprofit organizations are classified using the 2017 North American Industry Classification System code that accounts for the majority of their payroll. This classification may differ from the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 5

Total expenditures for R&D performed by nonprofit organizations, by field and type of nonprofit organization: FYs 2020–22

(Dollars in thousands)

Field	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
All R&D expenditures	26,709,319	13,964,718	10,368,712	2,375,889	27,029,919	13,441,110	11,166,124	2,422,685	28,052,093	14,658,216	11,260,286	2,133,591
Sciences	24,285,716	13,939,076	8,560,057	1,786,580	23,986,676	13,342,578	8,711,911	1,932,188	24,480,812	14,329,183	8,396,130	1,755,500
Agricultural sciences and natural resources and conservation	673,627	0	337,717	335,909	651,296	0	414,970	236,326	960,669	32,965	593,981	333,723
Biological, biomedical, and health sciences	19,772,099	13,805,748	5,467,679	498,672	20,008,279	13,243,038	5,831,904	933,337	20,279,107	14,238,644	5,384,343	656,121
Geosciences, atmospheric sciences, and ocean sciences	992,227	123	815,668	176,436	401,732	0	366,496	35,236	551,867	0	443,365	108,502
Mathematics, statistics, and computer and information sciences	470,330	39,086	354,582	76,661	710,937	1,233	509,081	200,624	1,050,595	1,997	934,519	114,079
Physical sciences	507,032	0	449,209	57,822	715,492	0	572,005	143,487	391,343	0	264,470	126,873
Psychology and social sciences	1,870,401	94,119	1,135,202	641,080	1,498,940	98,307	1,017,455	383,178	1,247,231	55,577	775,452	416,202
Engineering	1,557,822	19,985	1,445,180	92,658	2,019,719	20,245	1,961,271	38,203	1,965,124	25,171	1,926,555	13,397
Humanities	145,312	0	10,159	135,153	56,267	558	36,486	19,223	129,536	1,114	105,943	22,479
Other fields	720,471	5,657	353,315	361,498	967,257	77,730	456,455	433,072	1,476,620	302,749	831,657	342,214

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%.

^a Nonprofit organizations are classified using the 2017 North American Industry Classification System code that accounts for the majority of their payroll. This classification may differ from the National Taxonomy of Exempt Entities Core Codes system used by the Internal Revenue Service and National Center for Charitable Statistics.**Note(s):**

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 6

Total expenditures for R&D performed by nonprofit organizations, by source of funds, type of R&D, and type of nonprofit organization: FYs 2020–22

(Dollars in thousands)

Source of funds and type of R&D	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
Total R&D expenditures	26,709,319	13,964,718	10,368,712	2,375,889	27,029,919	13,441,110	11,166,124	2,422,685	28,052,093	14,658,216	11,260,286	2,133,591
Basic research	12,215,362	7,140,696	4,503,725	570,941	11,933,697	6,351,927	4,803,514	778,257	13,908,858	7,509,278	5,377,570	1,022,009
Applied research	10,080,702	4,337,028	4,432,810	1,310,863	9,827,005	4,100,493	4,728,247	998,266	9,276,465	3,652,184	4,658,681	965,601
Experimental development	4,413,255	2,486,994	1,432,177	494,084	5,269,216	2,988,691	1,634,363	646,163	4,866,770	3,496,755	1,224,035	145,980
Federally funded R&D expenditures	11,809,428	5,248,716	6,099,287	461,425	11,481,142	4,597,484	6,449,939	433,718	11,648,446	4,989,394	6,393,032	266,020
Basic research	5,168,520	2,696,185	2,386,314	86,021	4,644,509	2,201,535	2,355,712	87,261	5,556,248	2,695,373	2,773,283	87,592
Applied research	4,816,442	1,809,312	2,717,334	289,796	4,946,713	1,679,138	2,995,022	272,552	4,724,002	1,632,482	2,940,648	150,872
Experimental development	1,824,466	743,219	995,639	85,609	1,889,921	716,811	1,099,205	73,905	1,368,196	661,540	679,101	27,555
Nonfederally funded R&D expenditures	14,899,890	8,716,002	4,269,425	1,914,464	15,548,777	8,843,626	4,716,185	1,988,967	16,403,647	9,668,823	4,867,253	1,867,571
Basic research	7,046,843	4,444,511	2,117,411	484,921	7,289,189	4,150,392	2,447,801	690,996	8,353,346	4,813,906	2,604,287	935,153
Applied research	5,264,259	2,527,716	1,715,476	1,021,067	4,880,293	2,421,354	1,733,225	725,713	4,553,127	2,019,702	1,718,033	815,392
Experimental development	2,588,789	1,743,775	436,538	408,476	3,379,295	2,271,880	535,158	572,258	3,497,175	2,835,215	544,934	117,026

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

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These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 7

Funds provided by nonprofit organizations to others for R&D, by type of agreement and type of nonprofit organization: FYs 2020–22

(Dollars in thousands)

Type of agreement	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
All funds for R&D	8,230,657	909,284	1,610,208	5,711,166	8,723,736	1,295,917	1,897,991	5,529,828	8,277,041	1,329,548	1,931,920	5,015,573
R&D grants or contracts	5,880,503	204,086	587,733	5,088,683	6,202,088	432,838	677,644	5,091,606	5,629,925	314,517	726,698	4,588,711
Subcontracts and subawards	2,350,154	705,197	1,022,475	622,482	2,521,639	863,079	1,220,347	438,213	2,647,116	1,015,031	1,205,223	426,862

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

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Note(s):
 These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):
 National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 8

Employees of nonprofit organizations, by R&D activity and type of nonprofit organization: FYs 2020–22

(Number)

R&D activity	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
All organizations	9,059,948	7,297,412	77,200	1,685,336	8,664,836	7,523,888	78,323	1,062,625	7,833,243	6,704,870	80,078	1,048,295
Organizations with R&D activity	3,153,781	2,933,926	72,174	147,681	3,790,460	3,574,386	72,164	143,910	3,258,449	3,061,192	72,996	124,261
Organizations without R&D activity	5,906,167	4,363,486	5,026	1,537,656	4,874,376	3,949,502	6,159	918,715	4,574,794	3,643,678	7,082	924,035

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 9

Persons working on R&D at nonprofit organizations, by employment status and type of nonprofit organization: FYs 2020–22

(Number)

Employment status	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
Organization employees working on R&D	200,719	124,011	57,131	19,577	186,198	113,743	54,983	17,473	198,389	128,134	i 57,235	13,020
Contract employees working on R&D	11,437	3,548	2,892	4,998	r 11,539	3,100	4,649	3,791	13,155	6,242	3,762	3,152
Volunteers working on R&D	16,190	1,513	10,866	3,811	20,832	1,459	10,031	9,341	37,538	1,958	10,626	24,954

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; r = relative standard error > 50%.

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 10

R&D employees of nonprofit organizations, by occupation category and type of nonprofit organization: FYs 2020–22

(Number)

Occupation category	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
All R&D employees	200,719	124,011	57,131	19,577	186,198	113,743	54,983	17,473	198,389	128,134	57,235	13,020
Researchers	77,111	44,942	23,572	8,598	75,690	43,852	24,373	7,466	89,512	56,475	25,585	7,451
Technicians	67,434	41,681	20,934	4,819	63,832	41,600	18,316	3,916	68,072	46,581	18,438	3,053
Other support personnel	56,174	37,388	12,626	6,160	46,676	28,291	12,294	6,090	40,805	25,078	13,212	2,515

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 11

Full-time equivalent R&D employees of nonprofit organizations, by occupation category and type of nonprofit organization: FYs 2020–22

(Number)

Occupation category	Type of nonprofit organization ^a											
	FY 2020				FY 2021				FY 2022			
	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations	All organizations	Healthcare	Science and technology	Other nonprofit organizations
All full-time equivalent R&D employees	140,757	80,172	48,678	11,907	137,947	79,603	46,504	11,839	136,206	79,210	47,168	9,828
Researchers	55,655	28,972	20,270	6,414	56,068	28,849	21,096	6,124	60,574	32,767	22,152	5,655
Technicians	49,391	28,205	18,135	3,052	49,530	31,083	15,709	2,739	48,256	30,420	15,554	2,282
Other support personnel	35,710	22,996	10,273	2,441	32,348	19,672	9,699	2,977	27,376	16,023	9,462	1,891

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 12

Capital expenditures by type of nonprofit organization: FY 2022

(Dollars in thousands)

Type of nonprofit organization ^a	Total capital expenditures	R&D capital expenditures
All organizations	37,673,060	971,991
Healthcare	33,668,837	446,644
Science and technology	950,874	487,135
Other nonprofit organizations	3,053,350	38,213

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

TABLE 13

Total capital expenditures for R&D: FY 2022

(Dollars in thousands)

Type of nonprofit organization ^a	Total R&D capital expenditures	Type of expenditure				
		Land acquisition	Buildings and land improvement	Equipment	Capitalized software	All other capital expenditures
All organizations	971,991	7,041	342,648	422,556	26,689	173,057
Healthcare	446,644	0	196,398	207,442	5,030	37,775
Science and technology	487,135	6,734	143,880	189,573	12,319	134,628
Other nonprofit organizations	38,213	307	2,370	25,541	9,340	654

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Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

TABLE 14

Nonprofit organizations with R&D activity, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022		
All states	2,855	2,836	2,662		
Alabama	6	24	26		
Alaska	12	18	17		
Arizona	44	28	26		
Arkansas	10	8	7		
California	481	391	363		
Colorado	92	60	67		
Connecticut	22	51	32		
Delaware	S	S	S		
District of Columbia	299	251	289		
Florida	68	101	52		
Georgia	27	27	60		
Hawaii	35	13	10		
Idaho	5	11	11		
Illinois	174	147	147		
Indiana	7	32	5		
Iowa	5	7	3		
Kansas	7	13	3		
Kentucky	8	20	5		
Louisiana	24	18	13		
Maine	10	25	47		
Maryland	107	90	123		
Massachusetts	132	170	152		
Michigan	56	73	66		
Minnesota	39	41	65		
Mississippi	10	9	1	r	
Missouri	36	29	29		
Montana	8	9	12		
Nebraska	6	16	11		
Nevada	2	r	13	4	
New Hampshire	3	1	r	11	
New Jersey	44	108	70		
New Mexico	33	21	10		
New York	246	298	286		
North Carolina	27	43	63		
North Dakota	1	r	1	r	2
Ohio	65	46	59		
Oklahoma	35	18	9		
Oregon	57	55	40		
Pennsylvania	92	100	77		
Rhode Island	18	13	9		
South Carolina	6	13	14		
South Dakota	1	r	8	10	
Tennessee	40	24	48		
Texas	116	122	62		
Utah	28	4	12		
Vermont	5	16	2		
Virginia	165	113	98		
Washington	108	81	88		
West Virginia	16	7	4		
Wisconsin	23	49	38		

TABLE 14

Nonprofit organizations with R&D activity, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022
Wyoming	3	4	4

r = relative standard error > 50%. S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 15

Total expenses of nonprofit organizations with R&D activity, by state: FYs 2020–22

(Dollars in thousands)

State	FY 2020	FY 2021	FY 2022
All states	678,869,289	880,925,119	857,790,377
Alabama	2,067,528	1,298,536	235,129
Alaska	1,364,858	1,419,278	1,661,943
Arizona	18,674,606	22,436,099	20,340,602
Arkansas	2,509,560	1,485,199	1,161,592
California	144,067,062	159,256,912	170,689,045
Colorado	21,906,186	25,617,857	29,962,468
Connecticut	717,028	4,650,429	1,951,755
Delaware	S	S	S
District of Columbia	8,167,990	7,125,102	11,397,820
Florida	6,204,475	32,630,129	28,587,097
Georgia	15,512,586	12,405,930	12,563,633
Hawaii	2,767,149	2,820,032	775,657
Idaho	4,362,298	4,672,017	5,102,116
Illinois	11,538,250	27,639,766	24,773,789
Indiana	9,196,510	7,709,661	1,385,866
Iowa	860,845	766,538	18,788
Kansas	353,551	509,678	23,819
Kentucky	2,702,088	2,446,811	2,391,908
Louisiana	5,604,581	2,216,499	12,045,721
Maine	4,695,354	4,948,346	6,895,327
Maryland	8,995,779	6,890,254	6,464,335
Massachusetts	36,859,220	62,792,066	47,648,706
Michigan	16,178,356	37,389,260	43,903,026
Minnesota	23,317,821	36,260,209	28,827,717
Mississippi	69,617	49,611	41,926
Missouri	13,415,465	4,793,658	16,365,883
Montana	690,000	750,670	90,195
Nebraska	1,515,641	1,251,360	1,452,978
Nevada	15,253	1,869,095	2,096,646
New Hampshire	2,526,119	2,534,334	2,946,101
New Jersey	7,044,427	21,574,868	11,413,859
New Mexico	254,917	88,500	40,443
New York	55,251,614	56,369,892	58,150,758
North Carolina	4,142,144	5,559,814	34,372,092
North Dakota	452,826	5,925	17,134
Ohio	30,385,978	36,325,936	46,422,072
Oklahoma	1,597,359	3,284,298	3,479,184
Oregon	2,834,956	3,305,442	3,012,159
Pennsylvania	44,500,958	14,620,994	23,755,956
Rhode Island	3,528,591	798,654	3,890,974
South Carolina	227,035	7,532,714	8,872,151
South Dakota	26,554	32,407	8,625,870
Tennessee	35,120,060	16,544,783	9,203,053
Texas	31,608,358	30,482,493	33,099,081
Utah	8,665,658	8,783,291	10,498,130
Vermont	8,265	281,144	9,567
Virginia	19,174,906	20,403,302	22,801,674
Washington	45,744,006	50,084,445	88,128,656
West Virginia	207,775	36,911	52,591
Wisconsin	21,229,067	128,158,898	10,128,217

TABLE 15

Total expenses of nonprofit organizations with R&D activity, by state: FYs 2020–22

(Dollars in thousands)

State	FY 2020	FY 2021	FY 2022
Wyoming	8,062	15,070	15,169

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse. S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 16

Employees of nonprofit organizations with R&D activity, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022
All states	3,153,781	3,790,460	3,258,449
Alabama	12,630	6,900	1,453
Alaska	7,367	7,217	7,441
Arizona	95,978	103,478	96,304
Arkansas	5,563	9,338	9,371
California	327,719	348,896	332,058
Colorado	102,229	103,205	122,087
Connecticut	12,252	21,248	11,234
Delaware	S	S	S
District of Columbia	22,897	18,744	21,156
Florida	42,139	162,755	158,937
Georgia	83,527	65,091	61,074
Hawaii	13,034	11,844	2,690
Idaho	19,401	19,090	20,022
Illinois	42,502	106,346	105,461
Indiana	54,589	50,352	15,929
Iowa	5,152	6,246	140
Kansas	1,855	8,892	192
Kentucky	11,336	12,723	11,489
Louisiana	30,717	i 12,331	46,519
Maine	31,831	31,129	34,198
Maryland	53,345	44,202	47,219
Massachusetts	156,581	178,004	181,504
Michigan	93,527	224,635	191,008
Minnesota	180,654	171,767	161,309
Mississippi	675	479	421
Missouri	83,994	26,657	85,567
Montana	2,982	3,270	4,201
Nebraska	9,674	3,557	7,219
Nevada	117	9,184	8,602
New Hampshire	13,276	11,926	13,051
New Jersey	52,607	116,454	41,802
New Mexico	1,345	430	216
New York	252,595	236,299	223,477
North Carolina	38,897	25,451	45,742
North Dakota	476	66	87
Ohio	190,581	216,283	258,197
Oklahoma	12,166	14,560	14,021
Oregon	16,341	18,004	15,605
Pennsylvania	226,964	97,447	100,984
Rhode Island	24,068	i 16,832	24,616
South Carolina	7,425	36,280	42,377
South Dakota	549	390	39,421
Tennessee	198,477	86,959	45,133
Texas	196,361	156,896	139,179
Utah	43,083	48,603	53,858
Vermont	59	2,394	57
Virginia	71,124	72,513	65,207
Washington	178,904	187,685	345,879
West Virginia	1,181	158	181
Wisconsin	122,882	677,103	44,422

TABLE 16

Employees of nonprofit organizations with R&D activity, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022
Wyoming	152	152	131

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse. S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 17

Total expenditures for R&D performed by nonprofit organizations, by state and source of funds: FYs 2020–22

(Dollars in thousands)

State	FY 2020				FY 2021				FY 2022			
	All R&D expenditures	Internal funds	Federal government	All other sources of funds	All R&D expenditures	Internal funds	Federal government	All other sources of funds	All R&D expenditures	Internal funds	Federal government	All other sources of funds
All states	26,709,319	5,974,525	11,809,428	8,925,365	27,029,919	7,535,597	11,481,142	8,013,180	28,052,093	7,568,079	11,648,446	8,835,568
Alabama	120,982	13	78,967	42,002	119,910	13,491	55,060	51,359	97,750	1,786	63,850	32,114
Alaska	17,387	22	16,043	1,322	17,375	102	15,447	1,826	16,387	5	15,424	959
Arizona	109,263	12,281	53,376	43,606	167,955	57,192	86,385	24,378	186,604	19,598	82,928	84,078
Arkansas	65,569	11,116	31,902	22,550	74,490	26,216	26,044	22,230	43,463	478	31,773	11,212
California	3,713,885	668,877	1,762,040	1,282,969	3,540,462	840,861	1,574,095	1,125,507	3,054,684	539,150	1,661,575	853,960
Colorado	147,984	21,278	78,277	48,429	348,426	27,150	93,487	227,790	406,223	72,338	106,672	227,212
Connecticut	142,804	32,455	18,133	92,216	102,809	64,775	18,130	19,904	116,386	52,916	28,873	34,597
Delaware	S	S	S	S	S	S	S	S	S	S	S	S
District of Columbia	1,749,853	220,703	523,881	1,005,270	1,136,172	234,985	365,758	535,430	1,187,478	385,830	302,345	499,303
Florida	462,230	98,613	182,917	180,700	460,556	100,376	188,821	171,360	517,798	90,578	205,644	221,577
Georgia	83,372	20,599	21,737	41,036	91,366	24,556	17,034	49,777	99,423	33,296	13,001	53,127
Hawaii	119,732	13,627	85,891	20,213	39,413	17,942	9,043	12,428	25,992	13,308	8,979	3,705
Idaho	10,174	711	2,835	6,628	63,604	31,599	10,531	21,475	14,314	3,269	2,644	8,401
Illinois	671,178	116,027	253,383	301,768	622,132	351,986	128,714	141,432	549,717	279,118	85,681	184,918
Indiana	21,161	11,223	1,605	8,333	27,921	13,038	555	14,329	19,131	15,962	45	3,125
Iowa	959	0	876	83	6,064	4,671	958	435	8,499	5,249	2,569	681
Kansas	11,832	25	201	11,606	13,862	3,198	614	10,050	9,038	5,871	80	3,087
Kentucky	1,777	168	286	1,324	9,685	3,629	2,714	3,341	4,553	2,909	56	1,587
Louisiana	55,173	7,868	27,177	20,129	39,385	7,191	22,100	10,094	71,125	34,899	29,332	6,894
Maine	172,329	3,539	128,756	40,033	178,944	2,957	134,831	41,156	308,582	65,949	162,993	79,640
Maryland	1,493,486	810,571	616,279	66,635	1,609,393	860,117	687,275	62,000	1,514,546	954,914	478,204	81,428
Massachusetts	5,318,579	972,737	2,729,888	1,615,954	5,356,426	1,155,852	2,506,156	1,694,418	5,791,608	1,055,992	2,674,160	2,061,456
Michigan	326,666	105,426	119,953	101,288	247,440	96,996	70,762	79,681	200,832	72,218	81,649	46,964
Minnesota	1,328,940	372,920	458,151	497,869	1,351,659	733,519	186,679	431,460	1,440,000	571,325	78,679	789,997
Mississippi	12,336	414	1,034	10,888	995	0	995	0	818	0	818	0
Missouri	149,112	54,763	45,042	49,308	107,312	44,279	29,429	33,604	124,882	46,094	33,010	45,778
Montana	4,472	64	1,661	2,747	7,203	532	1,296	5,375	9,369	47	2,151	7,170
Nebraska	25,902	8,085	11,241	6,576	10,746	927	8,893	925	65,969	3,113	62,073	783
Nevada	5,053	0	3,667	1,386	14,954	4,190	3,662	7,102	14,867	5,653	4,534	4,679
New Hampshire	28,693	0	18,500	10,193	31,310	0	19,841	11,469	46,228	9,023	17,786	19,420
New Jersey	46,032	9,686	13,649	22,697	171,639	33,476	36,396	101,768	307,198	143,594	40,765	122,838
New Mexico	97,310	12,547	42,858	41,905	21,442	5,060	8,729	7,653	23,274	5,650	9,127	8,497
New York	2,779,059	860,728	904,897	1,013,434	3,211,781	1,071,385	1,080,238	1,060,158	3,290,088	1,135,545	939,077	1,215,465

TABLE 17

Total expenditures for R&D performed by nonprofit organizations, by state and source of funds: FYs 2020–22

(Dollars in thousands)

State	FY 2020				FY 2021				FY 2022			
	All R&D expenditures	Internal funds	Federal government	All other sources of funds	All R&D expenditures	Internal funds	Federal government	All other sources of funds	All R&D expenditures	Internal funds	Federal government	All other sources of funds
North Carolina	944,693	395	756,013	188,286	888,653	15,272	751,954	121,427	1,202,472	56,067	976,563	169,842
North Dakota	32,702	1,147	13,454	18,101	1,007	313	338	356	657	593	0	65
Ohio	1,237,992	431,629	509,752	296,612	1,293,509	436,090	548,578	308,841	1,584,179	579,804	675,390	328,984
Oklahoma	89,402	5,442	35,596	48,364	86,965	590	41,039	45,335	98,327	1,697	53,052	43,578
Oregon	64,926	1,890	22,081	40,954	45,545	14,028	15,321	16,197	31,162	1,009	14,646	15,507
Pennsylvania	855,874	208,714	352,612	294,548	759,153	172,894	366,595	219,663	737,023	220,080	301,294	215,649
Rhode Island	188,575	40,497	79,881	68,196	171,003	11,008	71,847	88,148	130,165	8,241	72,929	48,995
South Carolina	6,563	0	4,274	2,289	6,576	343	3,851	2,382	31,336	264	11,704	19,368
South Dakota	559	0	542	17	0	0	0	0	12,712	0	0	12,712
Tennessee	548,852	368,791	132,256	47,806	631,171	381,659	228,590	20,922	599,601	435,578	128,531	35,491
Texas	1,067,782	152,421	454,525	460,837	1,236,551	208,746	576,521	451,285	1,313,784	109,282	624,480	580,021
Utah	33,293	5,366	9,268	18,659	25,978	1,731	12,441	11,806	20,073	1,994	11,946	6,133
Vermont	7,226	0	3,896	3,330	9,840	681	4,554	4,606	999	0	999	0
Virginia	596,429	71,242	334,303	190,884	804,783	106,159	572,195	126,428	785,659	135,115	531,876	118,668
Washington	1,577,239	206,349	810,941	559,949	1,453,716	164,984	835,598	453,135	1,536,003	290,919	821,631	423,452
West Virginia	56,500	11,377	21,701	23,423	22,343	193	8,710	13,440	28,494	515	11,226	16,753
Wisconsin	107,198	22,182	33,121	51,894	390,183	188,662	52,224	149,298	372,088	101,167	185,345	85,576
Wyoming	228	0	108	120	113	0	113	0	529	74	335	120

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse. S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 18

Funds provided by nonprofit organizations to others for R&D, by state: FYs 2020–22

(Dollars in thousands)

State	FY 2020	FY 2021	FY 2022
All states	8,230,657	8,723,736	8,277,041
Alabama	15,130	21,135	9,305
Alaska	2,947	8,148	5,407
Arizona	67,066	14,245	28,432
Arkansas	0	0	2,007
California	1,025,032	800,013	709,614
Colorado	89,869	107,100	154,771
Connecticut	8,372	65,129	7,984
Delaware	S	S	S
District of Columbia	527,641	336,348	428,297
Florida	56,566	59,764	30,918
Georgia	100,422	170,050	212,781
Hawaii	31,538	7,788	383
Idaho	0	3,773	474
Illinois	185,382	288,225	322,262
Indiana	118	7,956	282
Iowa	1,450	2,276	7,897
Kansas	718	591	789
Kentucky	853	12,420	0
Louisiana	11,442	10,320	35,496
Maine	17,546	16,640	25,939
Maryland	337,758	466,491	267,071
Massachusetts	433,072	538,605	579,112
Michigan	40,524	69,840	36,469
Minnesota	37,423	33,234	44,368
Mississippi	0	425	0
Missouri	122,903	189,848	72,729
Montana	626	1,409	941
Nebraska	15,302	18,918	17,116
Nevada	163	5,554	5,328
New Hampshire	6,700	46	8,029
New Jersey	32,664	142,649	64,487
New Mexico	4,785	4,317	1,440
New York	1,131,541	1,617,093	1,654,271
North Carolina	141,516	225,739	497,963
North Dakota	30,480	0	0
Ohio	45,626	81,947	109,919
Oklahoma	3,365	71,140	5,414
Oregon	23,622	40,137	2,943
Pennsylvania	147,428	249,922	463,874
Rhode Island	17,012	30,423	5,692
South Carolina	4,482	10,523	8,419
South Dakota	359	1,749	0
Tennessee	52,518	49,687	44,110
Texas	320,951	336,059	358,670
Utah	239	1,921	25,914
Vermont	87	214	0
Virginia	167,505	269,736	168,934
Washington	2,950,213	2,270,546	1,779,421
West Virginia	2,623	1,318	0
Wisconsin	16,506	61,707	71,038

TABLE 18

Funds provided by nonprofit organizations to others for R&D, by state: FYs 2020–22

(Dollars in thousands)

State	FY 2020	FY 2021	FY 2022
Wyoming	572	618	331

S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 19

Persons working on R&D at nonprofit organizations, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022
All states	200,719	186,198	198,389
Alabama	766	800	774
Alaska	3,705	197	163
Arizona	1,132	956	1,217
Arkansas	455 i	785 i	165
California	27,749	20,018	20,111
Colorado	1,300	1,598	2,136
Connecticut	904 i	529	593
Delaware	S	S	S
District of Columbia	7,964	6,078	5,705
Florida	4,129 i	6,505 i	6,335 i
Georgia	714	687	751
Hawaii	721	353	188
Idaho	195	683	316
Illinois	3,597	5,923 i	2,153
Indiana	279	1,016	106
Iowa	15	53	49
Kansas	73	120	140
Kentucky	51	166	54
Louisiana	399 i	228	783
Maine	1,194	1,395	2,165
Maryland	5,767	6,012	6,829
Massachusetts	36,786	33,883	38,309
Michigan	3,641	1,783	1,874
Minnesota	12,882 i	20,205 i	19,919 i
Mississippi	42	13	14
Missouri	1,576 i	505	1,524 i
Montana	31	43	73
Nebraska	306	38	137
Nevada	49	160	108
New Hampshire	406	370	399
New Jersey	483	1,405	1,525
New Mexico	572 i	185	145
New York	18,161	18,563	29,499 i
North Carolina	15,596	4,246	6,898
North Dakota	53	5	10
Ohio	9,445	10,039	11,428
Oklahoma	713	658	709
Oregon	733	521	408
Pennsylvania	5,986	4,114	3,659
Rhode Island	1,642 i	2,359	2,669
South Carolina	39	113	472
South Dakota	11	0	143
Tennessee	5,220	4,464	3,628
Texas	6,945	8,248	5,621
Utah	783	703	555
Vermont	52	134	1
Virginia	5,181	5,673	6,160
Washington	10,553	8,729	9,558
West Virginia	758	85	159
Wisconsin	957	4,847	2,047

TABLE 19

Persons working on R&D at nonprofit organizations, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022
Wyoming	7	3	2

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse. S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding. Employees are categorized by state based on the location of the organization headquarters.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE 20

Full-time equivalent R&D employees of nonprofit organizations, by state: FYs 2020–22

(Number)

State	FY 2020		FY 2021		FY 2022	
All states	140,757		137,947		136,206	
Alabama	701		773		467	
Alaska	219		175		148	
Arizona	812		857		961	
Arkansas	272	i	539	i	92	
California	19,337		12,868		11,704	
Colorado	1,286		1,496		1,836	
Connecticut	631	i	325		388	
Delaware	S		S		S	
District of Columbia	6,274		5,159		5,017	
Florida	2,954	i	4,483	i	4,171	i
Georgia	627		618		590	
Hawaii	567		226		171	
Idaho	116		592		193	
Illinois	2,857		2,513		1,571	
Indiana	168		280		102	
Iowa	10		43		43	
Kansas	72		108		139	
Kentucky	35		79		40	
Louisiana	296	i	191		743	
Maine	1,172		1,358		1,479	
Maryland	5,268		5,837		6,280	
Massachusetts	23,813		23,292		24,365	
Michigan	2,386		1,236		1,415	
Minnesota	7,986	i	14,563	i	12,269	i
Mississippi	10		10		12	
Missouri	1,030	i	428		943	i
Montana	29		37		68	
Nebraska	154		38		113	
Nevada	46		140		69	
New Hampshire	110		98		133	
New Jersey	442		1,231		1,214	
New Mexico	506	i	143		132	
New York	12,602		14,278		13,949	
North Carolina	6,799		2,664		5,415	
North Dakota	16		4		10	
Ohio	8,318		8,615		9,120	
Oklahoma	687		648		702	
Oregon	417		273		273	
Pennsylvania	4,868		3,291		3,306	
Rhode Island	1,159	i	1,786		2,049	
South Carolina	25		88		401	
South Dakota	11		0		143	
Tennessee	4,518		4,318		3,427	
Texas	5,553		7,354		5,418	
Utah	424		702		316	
Vermont	39		120		1	
Virginia	5,384		4,560		4,674	
Washington	8,602		7,123		8,092	
West Virginia	513		76		120	
Wisconsin	631		2,309		1,919	

TABLE 20

Full-time equivalent R&D employees of nonprofit organizations, by state: FYs 2020–22

(Number)

State	FY 2020	FY 2021	FY 2022
Wyoming	4	3	2

i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse. S = suppressed for reliability; estimate does not meet publication standards because of high sampling variability, poor response quality, or other concerns about the estimate quality.

Note(s):

These data exclude nonprofit universities and colleges and federally funded research and development centers administered by nonprofit organizations. Detail may not add to total because of rounding. Employees are categorized by state based on the location of the organization headquarters.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

Technical Notes

Survey Overview (FY 2022 Survey Cycle)

Purpose. The Nonprofit Research Activities (NPRA) module of the Annual Business Survey collects information on research and experimental development (R&D) performed or funded by private nonprofit organizations as defined in the Frascati Manual. Private nonprofit R&D organizations are tax-exempt nonprofit organizations whose R&D is not controlled by institutes of higher education, governments, or businesses.

NCSES combines nonprofit sector data with data from the other sectors to estimate total national R&D expenditures. Results of the research activities data collected from nonprofit organizations will be used to report updated, valid, and reliable estimates of U.S. nonprofit R&D in [National Patterns of R&D Resources](#) and the Bureau of Economic Analysis system of national accounts.

The data collected will also be incorporated into the National Science Board's biennial report, [Science and Engineering Indicators](#). The R&D data from the nonprofit module will be reported in the Organization for Economic Cooperation and Development (OECD) periodic publications and used for international comparisons of R&D efforts. NCSES also anticipates professional associations will use data from the nonprofit R&D module. Likely users in this category include, but are not limited to, the Science Philanthropy Alliance, the Association of Independent Research Institutes, and the Health Research Alliance.

Data collection authority. Title 13, United States Code, Sections 8(b), 131, and 182; Title 42, United States Code, Section 1861-76 (NSF Act of 1950, as amended); and Section 505 within the America COMPETES Reauthorization Act of 2010, authorize this collection. Sections 224 and 225 of Title 13 require mandatory response. Office of Management and Budget No. 0607-1004. The disclosure review number is NCSES-DRN24-060.

Survey sponsor. NCSES within NSF.

Survey collection and tabulation agent. The survey is conducted annually by the Census Bureau in accordance with an interagency agreement with NCSES.

Key Survey Information

Frequency. Annual.

Initial survey year. FY 2020. (The questions in the FY 2020 module were first developed and used on the FY 2016 Nonprofit Research Activities Survey, which was the first national survey of R&D activities in the U.S. nonprofit population since 1997. Due to the differences between the surveys prior to FY 2020 and the current module, FY 2020 is considered the initial survey year for the annual series.)

Reference period. FY 2022. The fiscal year referred to throughout this report was the nonprofit organizations' fiscal year; for the majority of organizations reporting R&D performance, this fiscal year ended in either September or December 2022.

Response unit. Organizations.

Sample or census. Sample.

Population size. 42,000 organizations.

Sample size. 8,000 organizations.

Survey Design

Target population. Included are all nonfarm organizations with at least one in-scope location filing Internal Revenue Service (IRS) Form 990 as a tax-exempt organization and with an annual payroll of \$500,000 or more.

Sampling frame. The sampling frame was constructed from the final 2021 Business Register and the Exempt Organizations Business Master File Extract (EO BMF). The Business Register is the Census Bureau's comprehensive database of U.S. businesses. Business Register data are compiled from business tax returns, data collected from the economic census, and other Census Bureau surveys. The Business Register includes sole proprietorships, partnerships, and corporations reporting business activity to the IRS. The EO BMF is a publicly available list from the IRS of all organizations that are exempt from filing federal income taxes. Both files collect data at the establishment level; organizations may have multiple establishments.

The Business Register contains establishments that are out of scope for the nonprofit R&D module. These establishments are removed from the sampling universe. They include:

- Establishments engaged in the following [North American Industry Classification System](#) (NAICS) industries:
 - 110000, 111, or 112 - Agriculture production
 - 482 - Railroads
 - 491 - U.S. Postal Service
 - 521 - Monetary authorities – central bank
 - 525 - Funds, trusts, and other financial vehicles
 - 8131, 8134 - Religious and civic organizations
 - 814 - Private households
 - 92 - Public administration
- Establishments located in American Samoa, Northern Mariana Islands, Guam, Puerto Rico, or the Virgin Islands
- Establishments belonging to foreign entities
- Government establishments
- Establishments with zero payroll and zero employment
- For-profit establishments or nonprofit establishments within multi-establishment organizations that have a majority of organization payroll in for-profit establishments

Information on industry classification, receipts, payroll, and employment was extracted from the Business Register during the sampling frame construction. Nonprofit status for each establishment was determined by matching the Business Register to the IRS nonprofit list.

The sampling frame is stratified by primary type of organization, primary nonprofit activity, and state. Details on how organization-level sampling units are assigned to these strata follow.

The sample is selected at the organization level, so organizations with multiple establishments were combined into one organization-level unit for sampling. Organization payroll, receipts, and employment are set to the respective sums across all establishments within the organization.

Organizations with multiple establishments are assigned a single industry classification using a hierarchical system based on the largest payroll. For NAICS, the hierarchy is largest payroll sector, largest payroll 3-digit NAICS (within the largest

sector), largest payroll 4-digit NAICS (within the largest 3-digit), and largest payroll 6-digit NAICS (within the largest 4-digit). For organization National Taxonomy of Exempt Entities (NTEE) code, the hierarchy is the first letter of the NTEE code with the largest payroll then the largest payroll of the full 3 characters of the NTEE code.

After organization-level units are created and organization-level codes are assigned, organizations are removed from the sampling frame if any of the following are true:

- Primary activity is identified as any of the following:
 - Education services (NAICS sector 61 or NTEE code starting with B).
 - Housing and shelter (NTEE begins with L except those with the last 2 digits of “05”)
 - Recreation and sports (NTEE begins with N except those with last 2 digits of “05”)
 - Youth development (NTEE begins with O except those with last 2 digits of “05”)
 - Religion-related (NTEE begins with X except those with last 2 digits of “05”)
 - Mutual benefit (NTEE begins with Y except those with last 2 digits of “05”)
- The organization is also in the Business Enterprise Research and Development (BERD) Survey sampling frame.
- Organization payroll is less than \$500,000 annually.

Education services organizations are out of scope because the R&D for those organizations is measured by the Higher Education Research and Development (HERD) Survey. Organizations also in the BERD Survey sampling frame are removed because their R&D is measured by the BERD Survey. The remaining criteria identify other organizations that are unlikely to perform R&D activities, and these organizations are removed.

All records in the nonprofit sample universe are assigned a primary nonprofit activity stratum as follows:

- If the organization’s NAICS code begins with “622” or the first 2 characters of its NTEE is “E2” then its stratum is set to “A” (Hospitals).
- Else if the NAICS code begins with “5417” then its stratum is set to “C” (Science and technology).
- Else if the NAICS code begins with “62” or the first character of NTEE is “E” then its stratum is set to “B” (Other healthcare).
- Remaining unclassified organizations have their stratum set to “D” (Other).

Sample design. The nonprofit R&D frame is stratified by state and primary type of organization (hospitals, other healthcare, science and technology, and all others) ([table A-1](#)). Within these strata some nonprofits were selected with certainty based on the following criteria.

- Organizations with known R&D activity (950 organizations)
- Organizations larger than stratum-specific payroll cutoffs (1,200 organizations)

The nonprofit R&D sample consisted of 8,000 organizations, and 2,100 were selected with certainty.

The remaining 5,900 noncertainty cases were selected using systematic stratified random sample selection, with a maximum sample weight of 7.1.

Data Collection and Processing Methods

Data collection. The survey was mailed to 8,000 nonprofit organizations in July 2023. The organizations were sent a letter informing them of their requirement to report under Title 13, United States Code, Sections 224 and 225. The letter also provided instructions on accessing and submitting the survey online. There were three mail follow-ups and four e-mail follow-ups conducted to increase response. The collection period closed on 29 December 2023.

Mode. The data were collected using an electronic instrument.

Response rates.

Check-in rate. The check-in rate is defined as the unweighted number of surveys that were submitted online by in-scope organizations, divided by the unweighted total number of all in-scope organizations in the sample (sample size). Response to individual questions did not factor into this metric. At the close of the collection period, the check-in rate was 79% (table A-2).

Unit response rate (URR). For this survey, the unit response is defined as an organization providing total expenses or employment and answering the R&D performed and R&D funded questions. URR is the ratio between the number of unit respondents in a sample (numerator) and the total sample size (denominator), expressed as a percentage. The URR was 77% (table A-3).

Item response rates. The distribution of values reported by sample organizations in the nonprofit module is highly skewed. Thus, rather than report unweighted item response rates, total quantity response rates are calculated, which are based on weighted data.

Total quantity response rate (TQRR). For a given published estimate other than count or ratio estimates, TQRR is the percentage of the weighted estimate based on reported data (including data obtained from other sources determined to be equivalent in quality to reported data) and weighted by sampling but not nonresponse weights. The TQRR for total expenditures for R&D performed by nonprofit organizations in the United States in 2022 was 76%.

Total quantity nonresponse rate (TQNR). For a given published estimate, TQNR, defined as 100% minus TQRR, is calculated for each tabulation cell from the nonprofits, except for cells that contain count or ratio estimates. TQNR measures the combined effect of the procedures used to handle unit and item nonresponse on the weighted nonprofit estimates. Detailed imputation rates are available upon request.

Data editing. Prior to tabulating the data, response data were reviewed and edited with both automated and manual procedures to correct detectable reporting errors. R&D data were tabulated for records reporting \$50,000 or more in R&D expenditures. Survey analysts reviewed the R&D data reported by the respondents. The data were evaluated by calculating the reported R&D expenses to expense ratios and reviewing the organization's website information.

Additional reporting errors were detected and corrected using an automated data edit system designed to review the data for reasonableness and consistency. The editing process interactively corrected detected errors using standard procedures. Quality control techniques were used to verify that procedures were carried out as specified.

During the editing of FY 2022 data, errors in reporting and eligibility determinations for organizations in FY 2020 and FY 2021 were discovered and revisions were made to correct these. For accurate historical data, use only the most recently released data tables.

Imputation.

Item nonresponse. If detailed R&D data was not reported by a nonprofit and could not be inferred by survey analysts, it was imputed in the same ratio as reported by other nonprofits in the same sample stratum. These imputations are reflected in the reported imputation rates.

Unit nonresponse. Estimates produced from the survey data include adjustments to account for organizations that did not respond to the survey (unit nonresponse). If available, data from public tax filings, annual reports, or audits were used to impute expenses and R&D for select nonprofits known to have performed large amounts of R&D based on public information or prior surveys. Otherwise, unit nonresponse is handled by adjusting weighted reported data as follows. Each organization's sampling weight is multiplied by a nonresponse adjustment factor. To calculate the adjustment factors, each organization in the sample that is eligible for tabulation is assigned to the adjustment cells. The adjustment cells for nonprofits are based on certainty or noncertainty sampling strata and NAICS sector. For NAICS sector, there are three categories: healthcare, science and technology, and all other organizations. For a given adjustment cell, the nonresponse adjustment factor is the ratio of the sum of the sampling weights for all organizations included in the cell to the sum of the sampling weights for all organizations included in the cell with reported data. For the nonresponse adjustment, an organization is considered a respondent if it satisfies the definition of response as detailed in the *URR* section above.

Weighting. The survey data are weighted for sampling and unit nonresponse.

Industry classification. Nonprofit organizations are classified into one of four types of organization at the time of sampling: hospitals, other healthcare, science and technology, and all other organizations. Organizations tabulated based on the classification at the time of sampling with hospitals and other healthcare were collapsed into one tabulation group called healthcare. Classification is based on both the 2017 NAICS and the NTEE. An NTEE code is not available for all organizations.

Organizations are first classified as hospitals if the first two characters of their NTEE code are "E2" or the first three characters of their NAICS code are "622." Remaining organizations are classified as science and technology if the first four characters of their NAICS code are "5417." Remaining organizations are classified as other healthcare if the first character of their NTEE code is "E," or the first 2 digits of their NAICS code are "62." All remaining organizations are classified as other.

Variance estimation. This survey uses delete-a-group jackknife variance estimator. Note that certainty cases do not contribute to the sampling variance. The delete-a-group jackknife variance estimator requires that every sampling stratum contains at least two sampled organizations. Sampling strata that do not meet this requirement are collapsed as needed to create a new set of variance estimation strata that satisfies this requirement.

Survey Quality Measures

The estimates produced from the NPRA module are subject to both sampling and nonsampling errors.

Sampling error. Sampling error is the difference between estimates obtained from the sample and results theoretically obtainable from a comparable complete enumeration of the sampling frame. This error results because only a subset of the sampling frame is measured in a sample survey. For published estimates from NPRA, standard errors are produced for estimated percentages, while relative standard errors (RSEs) are produced for all other estimates. Tables of the estimated measures of sampling variability corresponding to each data table are available upon request.

Coverage error. Coverage error occurs when the sampling frame fails to completely enumerate the population of interest. There can be both undercoverage error, where organizations are not included in the frame, and overcoverage error, where organizations included in the frame are out of scope for the population of interest. The NPRA module uses the prior year's Business Register to construct the frame so any changes in organizations that would change the inclusion or exclusion of the organization to the survey scope could be sources of coverage error. Prior to tabulation, the survey unit's information is updated with the most recent available Business Register data to mitigate this source of error.

Nonresponse error. Nonresponse error refers to the differences in key estimates between organizations in the sampling frame that were sampled for data collection and those that responded. For unit nonresponse, multiple follow-ups were

conducted with nonresponding organizations to mitigate nonresponse error. The final survey weights incorporated nonresponse adjustments to reduce the risk of nonresponse bias in the final estimates.

Nonresponse bias for survey estimates cannot be directly measured. However, the impact of nonresponse was incorporated into the variability of survey estimates using the assumption that the data is missing at random. Missing at random for this survey means that, conditional on the nonresponse adjustments, the propensity for an organization to respond is not related to R&D performance.

To minimize item nonresponse, organizations were encouraged to report estimates of expenditures when actual dollar amounts could not be provided. This approach reduces item nonresponse error risk but may introduce measurement error. Imputation was conducted to help mitigate item nonresponse error.

Measurement error. The most common source of measurement error was reporting in different units (e.g., reporting in whole dollars rather than in thousands of dollars). This was corrected during data processing. Another source of error involved incorrect inclusion of organizations already represented in different R&D data collections. The R&D of these respondents was set to 0 if it was determined their R&D was already represented in other surveys. These cases included nonprofit organizations managing federal laboratories and some university-affiliated hospitals.

Data Comparability

The questions in the FY 2020 module were first developed and used on the FY 2016 Nonprofit Research Activities Survey—which was the first national survey of R&D activities in the U.S. nonprofit population since 1997. Due to the differences in the surveys prior to FY 2020, those data are not comparable for trend analysis.

Definitions

Contract employees. Contract employees are individuals contracted to work on projects otherwise fully performed by organization staff.

Depreciation and amortization. Depreciation on tangible research assets, such as buildings or equipment, as well as amortization of intangible assets, such as patents.

Employment. Paid employment consists of full- and part-time employees, including salaried officers and executives of corporations who were on the payroll in the pay period including 12 March 2022. Included are employees on sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses.

Other support personnel. Staff who provide direct support services for the research project.

Research and experimental development (R&D). R&D is planned, creative work aimed at discovering new knowledge or devising new applications of available knowledge. This includes (1) activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses (basic research); (2) activities aimed at solving a specific problem or meeting a specific commercial objective (applied research); and (3) systematic use of research and practical experience and resulting in additional knowledge, which is directed to producing new or improved goods, services, or processes (experimental development). R&D includes both direct costs, such as salaries of researchers and administrative and overhead costs clearly associated with the organization's R&D. However, R&D does not include expenditures for routine product testing, quality control, and technical services unless they are an integral part of an R&D project. R&D also does not include market research; efficiency surveys or management studies; literary, artistic, or historical projects, such as films, music, or books and other publications; and prospecting or exploration for natural resources.

- *Basic research.* Activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses.

- *Applied research.* Activities aimed at solving a specific problem or meeting a specific commercial objective.
- *Experimental development.* Systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

Researchers. Professionals engaged in the conception or creation of new knowledge.

Research technicians. Staff who work under the supervision of researchers to conduct research activities.

Research volunteers. Unpaid workers contributing appreciable and essential activity to research performed by the organization. Their research skills should be comparable to the organization's employees. Individuals funded by other sources to conduct research at the organization are not considered volunteers.

Salaries, wages, and fringe benefits. Costs for all compensation and benefits of employees who are included in the total R&D expenditures reported.

Technical Tables

Table	Title
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A-1	Organizations in the target population and selected for the sample, by industry: FY 2022
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A-2	Response measures: FYs 2020–22
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A-3	Unit response rates, by industry: FY 2022
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TABLE A-1

Organizations in the target population and selected for the sample, by industry: FY 2022

(Number)

Industry	NAICS code	Organizations in target population ^a	Organizations selected for the sample		
			All organizations	Noncertainties	Certainties
All organizations	All	42,000	8,000	5,900	2,100
Healthcare	621, 622, 623	23,000	4,200	3,200	950
Science and technology	5417	650	550	200	400
Other	Other	18,500	3,300	2,500	800

NAICS = 2017 North American Industry Classification System.

^a Estimates of the number of organizations in the target population are based on the original sampling frame that was created to select the Nonprofit Research Activities FY 2022 Module of the 2023 Annual Business Survey.

Note(s):

Numbers are rounded for disclosure protection purposes. Certainty organizations have a selection probability of one and a sampling weight of one and represent only themselves. Organizations are selected with certainty based on known R&D activities and larger than stratum-specific payroll cutoffs. Noncertainties are organizations with a probability of selection of less than one.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

TABLE A-2

Response measures: FYs 2020–22

(Percent)

Measure	2020	2021	2022
Check-in rate ^a	85	84	79
Response rate (unweighted) ^b	83	81	77

^a Number of survey responses from in-scope companies divided by the total number of in-scope companies in the sample.

^b Response rate (unweighted) is the number of responding organizations that report total expenses or employment and that answer the R&D performed and R&D funded questions divided by the total number of in-scope organizations in the sample.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities module of the Annual Business Survey.

TABLE A-3

Unit response rates, by industry: FY 2022

(Number and percent)

Industry	NAICS code	Active reporting units (number) ^a	Reporting units that met the response criteria (%) ^b
All organizations	All	8,000	77
Healthcare	621, 622, 623	4,200	75
Science and technology	5417	550	79
Other	Other	3,300	78

NAICS = 2017 North American Industry Classification System.

^a Active reporting units are defined as reporting units of active organizations that are in the scope of the survey after all data have been processed. Detail does not add to total because of rounding.

^b Reporting units are considered to have met the response criteria if they report total expenses or employment and answer the R&D performed and R&D funded questions.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Nonprofit Research Activities FY 2022 module of the 2023 Annual Business Survey.

Acknowledgments and Suggested Citation

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