

TABLE 7

## Total and federally financed higher education R&amp;D expenditures, by type of R&amp;D: FYs 1953–2020

(Dollars in millions)

| Fiscal year             | Total                |                |         |   |         | Federal                      |                |         |   |         |
|-------------------------|----------------------|----------------|---------|---|---------|------------------------------|----------------|---------|---|---------|
|                         | All R&D expenditures | Basic research |         | Applied research and experimental development |         | All federal R&D expenditures | Basic research |         | Applied research and experimental development |         |
|                         |                      | Amount         | Percent | Amount  | Percent |                              | Amount         | Percent | Amount  | Percent |
| Total, S&E <sup>a</sup> |                      |                |         |   |         |                              |                |         |   |         |
| 1953                    | 255                  | 110            | 43.1    | 145   | 56.9    | 138                          | na             | na      | na  | na      |
| 1954                    | 290                  | 136            | 46.9    | 154   | 53.1    | 160                          | na             | na      | na  | na      |
| 1955                    | 312                  | 159            | 51.0    | 153   | 49.0    | 169                          | na             | na      | na  | na      |
| 1956                    | 372                  | 200            | 53.8    | 172   | 46.2    | 213                          | na             | na      | na  | na      |
| 1957                    | 410                  | 240            | 58.5    | 170   | 41.5    | 229                          | na             | na      | na  | na      |
| 1958                    | 456                  | 281            | 61.6    | 175   | 38.4    | 254                          | na             | na      | na  | na      |
| 1959                    | 526                  | 343            | 65.2    | 183   | 34.8    | 306                          | na             | na      | na  | na      |
| 1960                    | 646                  | 433            | 67.0    | 213   | 33.0    | 405                          | na             | na      | na  | na      |
| 1961                    | 763                  | 536            | 70.2    | 227   | 29.8    | 500                          | na             | na      | na  | na      |
| 1962                    | 904                  | 659            | 72.9    | 245   | 27.1    | 613                          | na             | na      | na  | na      |
| 1963                    | 1,081                | 814            | 75.3    | 267   | 24.7    | 760                          | na             | na      | na  | na      |
| 1964                    | 1,275                | 1,003          | 78.7    | 272   | 21.3    | 917                          | na             | na      | na  | na      |
| 1965                    | 1,474                | 1,138          | 77.2    | 336   | 22.8    | 1,073                        | na             | na      | na  | na      |
| 1966                    | 1,715                | 1,303          | 76.0    | 412   | 24.0    | 1,261                        | na             | na      | na  | na      |
| 1967                    | 1,921                | 1,457          | 75.8    | 464   | 24.2    | 1,409                        | na             | na      | na  | na      |
| 1968                    | 2,149                | 1,650          | 76.8    | 499   | 23.2    | 1,572                        | na             | na      | na  | na      |
| 1969                    | 2,225                | 1,711          | 76.9    | 514   | 23.1    | 1,600                        | na             | na      | na  | na      |
| 1970                    | 2,335                | 1,796          | 76.9    | 539   | 23.1    | 1,647                        | na             | na      | na  | na      |
| 1971                    | 2,500                | 1,914          | 76.6    | 586   | 23.4    | 1,724                        | na             | na      | na  | na      |
| 1972                    | 2,630                | 2,022          | 76.9    | 608   | 23.1    | 1,795                        | 1,420          | 79.1    | 375   | 20.9    |
| 1973                    | 2,884                | 2,053          | 71.2    | 831   | 28.8    | 1,985                        | 1,454          | 73.2    | 531   | 26.8    |
| 1974                    | 3,023                | 2,154          | 71.3    | 869   | 28.7    | 2,032                        | 1,523          | 74.9    | 509   | 25.1    |
| 1975                    | 3,409                | 2,410          | 70.7    | 999   | 29.3    | 2,288                        | 1,695          | 74.1    | 593   | 25.9    |
| 1976                    | 3,729                | 2,549          | 68.4    | 1,180   | 31.6    | 2,512                        | 1,841          | 73.3    | 671   | 26.7    |
| 1977                    | 4,067                | 2,800          | 68.8    | 1,267   | 31.2    | 2,726                        | 2,007          | 73.6    | 720   | 26.4    |
| 1978 <sup>b</sup>       | 4,625                | na             | na      | na  | na      | 3,059                        | na             | na      | na  | na      |
| 1979                    | 5,366                | 3,619          | 67.4    | 1,747   | 32.6    | 3,598                        | 2,577          | 71.6    | 1,022   | 28.4    |
| 1980                    | 6,063                | 4,036          | 66.6    | 2,026   | 33.4    | 4,098                        | 2,861          | 69.8    | 1,237   | 30.2    |
| 1981                    | 6,847                | 4,594          | 67.1    | 2,253   | 32.9    | 4,571                        | 3,260          | 71.3    | 1,311   | 28.7    |
| 1982                    | 7,324                | 4,879          | 66.6    | 2,445   | 33.4    | 4,768                        | 3,402          | 71.3    | 1,367   | 28.7    |
| 1983                    | 7,882                | 5,303          | 67.3    | 2,579   | 32.7    | 4,989                        | 3,547          | 71.1    | 1,442   | 28.9    |
| 1984                    | 8,620                | 5,733          | 66.5    | 2,887   | 33.5    | 5,431                        | 3,830          | 70.5    | 1,601   | 29.5    |
| 1985                    | 9,687                | 6,556          | 67.7    | 3,131   | 32.3    | 6,064                        | 4,343          | 71.6    | 1,722   | 28.4    |
| 1986                    | 10,928               | 7,492          | 68.6    | 3,435   | 31.4    | 6,712                        | 4,868          | 72.5    | 1,844   | 27.5    |
| 1987                    | 12,153               | 8,393          | 69.1    | 3,760   | 30.9    | 7,343                        | 5,375          | 73.2    | 1,968   | 26.8    |
| 1988                    | 13,463               | 8,894          | 66.1    | 4,569   | 33.9    | 8,193                        | 5,678          | 69.3    | 2,515   | 30.7    |
| 1989                    | 14,979               | 9,793          | 65.4    | 5,186   | 34.6    | 8,993                        | 6,195          | 68.9    | 2,797   | 31.1    |
| 1990                    | 16,290               | 10,645         | 65.3    | 5,645   | 34.7    | 9,640                        | 6,649          | 69.0    | 2,991   | 31.0    |
| 1991                    | 17,589               | 11,607         | 66.0    | 5,982   | 34.0    | 10,238                       | 7,128          | 69.6    | 3,110   | 30.4    |
| 1992                    | 18,821               | 12,516         | 66.5    | 6,305   | 33.5    | 11,095                       | 7,718          | 69.6    | 3,377   | 30.4    |
| 1993                    | 19,954               | 13,303         | 66.7    | 6,651   | 33.3    | 11,960                       | 8,398          | 70.2    | 3,562   | 29.8    |
| 1994                    | 21,035               | 13,989         | 66.5    | 7,046   | 33.5    | 12,654                       | 8,878          | 70.2    | 3,775   | 29.8    |
| 1995                    | 22,179               | 14,812         | 66.8    | 7,367   | 33.2    | 13,337                       | 9,399          | 70.5    | 3,938   | 29.5    |
| 1996                    | 23,055               | 15,481         | 67.1    | 7,574   | 32.9    | 13,847                       | 9,868          | 71.3    | 3,978   | 28.7    |
| 1997                    | 24,380               | 16,602         | 68.1    | 7,778   | 31.9    | 14,321                       | 10,316         | 72.0    | 4,006   | 28.0    |

TABLE 7

**Total and federally financed higher education R&D expenditures, by type of R&D: FYs 1953–2020**

(Dollars in millions)

| Fiscal year                         | Total                |                |         |   |         |                              | Federal        |         |   |         |  |
|-------------------------------------|----------------------|----------------|---------|---|---------|------------------------------|----------------|---------|---|---------|--|
|                                     | All R&D expenditures | Basic research |         | Applied research and experimental development |         | All federal R&D expenditures | Basic research |         | Applied research and experimental development |         |  |
|                                     |                      | Amount         | Percent | Amount  | Percent |                              | Amount         | Percent | Amount  | Percent |  |
| 1998                                | 25,867               | 19,058         | 73.7    | 6,810   | 26.3    | 15,159                       | 11,862         | 78.2    | 3,298   | 21.8    |  |
| 1999                                | 27,544               | 20,450         | 74.2    | 7,094   | 25.8    | 16,112                       | 12,746         | 79.1    | 3,365   | 20.9    |  |
| 2000                                | 30,084               | 22,547         | 74.9    | 7,537   | 25.1    | 17,548                       | 13,936         | 79.4    | 3,611   | 20.6    |  |
| 2001                                | 32,801               | 24,392         | 74.4    | 8,409   | 25.6    | 19,227                       | 15,038         | 78.2    | 4,188   | 21.8    |  |
| 2002                                | 36,383               | 27,363         | 75.2    | 9,019   | 24.8    | 21,856                       | 17,262         | 79.0    | 4,593   | 21.0    |  |
| 2003                                | 40,077               | 30,105         | 75.1    | 9,973   | 24.9    | 24,753                       | 19,627         | 79.3    | 5,126   | 20.7    |  |
| 2004                                | 43,238               | 31,957         | 73.9    | 11,281  | 26.1    | 27,627                       | 21,353         | 77.3    | 6,274   | 22.7    |  |
| 2005                                | 45,774               | 34,353         | 75.0    | 11,421  | 25.0    | 29,187                       | 22,885         | 78.4    | 6,302   | 21.6    |  |
| 2006                                | 47,759               | 36,082         | 75.5    | 11,677  | 24.5    | 30,132                       | 23,697         | 78.6    | 6,434   | 21.4    |  |
| 2007                                | 49,495               | 37,726         | 76.2    | 11,769  | 23.8    | 30,430                       | 24,001         | 78.9    | 6,429   | 21.1    |  |
| 2008                                | 51,872               | 39,322         | 75.8    | 12,550  | 24.2    | 31,272                       | 24,430         | 78.1    | 6,842   | 21.9    |  |
| 2009                                | 54,863               | 40,913         | 74.6    | 13,950  | 25.4    | 32,576                       | 25,025         | 76.8    | 7,551   | 23.2    |  |
| Total, S&E and non-S&E <sup>a</sup> |                      |                |         |   |         |                              |                |         |   |         |  |
| 2010                                | 61,287               | 40,880         | 66.7    | 20,407  | 33.3    | 37,478                       | 25,617         | 68.4    | 11,860  | 31.6    |  |
| 2011                                | 65,274               | 43,332         | 66.4    | 21,943  | 33.6    | 40,768                       | 27,573         | 67.6    | 13,195  | 32.4    |  |
| 2012                                | 65,729               | 42,939         | 65.3    | 22,790  | 34.7    | 40,142                       | 26,704         | 66.5    | 13,438  | 33.5    |  |
| 2013                                | 67,013               | 43,831         | 65.4    | 23,182  | 34.6    | 39,446                       | 26,289         | 66.6    | 13,157  | 33.4    |  |
| 2014                                | 67,199               | 43,477         | 64.7    | 23,722  | 35.3    | 37,961                       | 25,110         | 66.1    | 12,851  | 33.9    |  |
| 2015                                | 68,550               | 44,230         | 64.5    | 24,320  | 35.5    | 37,847                       | 25,133         | 66.4    | 12,713  | 33.6    |  |
| 2016                                | 71,768               | 45,510         | 63.4    | 26,258  | 36.6    | 38,789                       | 25,162         | 64.9    | 13,626  | 35.1    |  |
| 2017                                | 75,147               | 46,912         | 62.4    | 28,235  | 37.6    | 40,249                       | 25,848         | 64.2    | 14,400  | 35.8    |  |
| 2018                                | 79,026               | 49,618         | 62.8    | 29,408  | 37.2    | 41,863                       | 26,901         | 64.3    | 14,962  | 35.7    |  |
| 2019                                | 83,534               | 52,504         | 62.9    | 31,030  | 37.1    | 44,483                       | 28,646         | 64.4    | 15,837  | 35.6    |  |
| 2020                                | 86,296               | 54,133         | 62.7    | 32,163  | 37.3    | 46,144                       | 29,311         | 63.5    | 16,832  | 36.5    |  |

na = not applicable; separate data for federally financed basic research, applied research, and experimental development were not collected for these years.

S&E = science and engineering.

<sup>a</sup> Totals for FYs 1953–2009 represent R&D expenditures in S&E fields only. Beginning in FY 2010, totals and type of R&D data include R&D expenditures in S&E fields and non-S&E fields.

<sup>b</sup> FY 1978 data are estimated based on data collected from doctorate-granting institutions only.

**Note(s):**

Type of R&D estimation procedure was revised for FY 1998 and later years; hence, these data are not directly comparable to data for FY 1997 and earlier years. Prior to FY 2010, R&D expenditures by type of R&D were based on percentage estimates of basic research provided by universities and colleges. Beginning in FY 2010, institutions were asked for dollar amounts of federally funded and nonfederally funded R&D expenditures for basic research, applied research, and experimental development. Because of rounding, detail may not add to total.

**Source(s):**

National Center for Science and Engineering Statistics, Higher Education Research and Development Survey.