

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002

(in millions of dollars)

| Category | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 |
|--|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| National defense: | | | | | | | | |
| Department of Defense | 688 | 700 | 775 | 1,100 | 1,412 | 1,385 | 1,397 | 1,683 |
| Other national defense | 74 | 72 | 71 | 104 | 141 | 166 | 153 | 215 |
| Total national defense | 762 | 772 | 846 | 1,204 | 1,553 | 1,551 | 1,550 | 1,898 |
| Nondefense: | | | | | | | | |
| General science, space, and technology: | | | | | | | | |
| NASA | 42 | 43 | 44 | 51 | 50 | 48 | 43 | 50 |
| NSF | | | | | | 4 | 8 | 15 |
| Atomic energy general science | 40 | 49 | 50 | 60 | 63 | 64 | 73 | 78 |
| Subtotal | 82 | 92 | 94 | 111 | 113 | 116 | 124 | 143 |
| Energy | N/A | N/A | N/A | N/A | N/A | N/A | 27 | 42 |
| Transportation: | | | | | | | | |
| DOT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Subtotal | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Health: | | | | | | | | |
| NIH | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Other | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Subtotal | N/A | N/A | N/A | N/A | 45 | 51 | 69 | 81 |
| Agriculture | N/A | N/A | N/A | N/A | 49 | 53 | 62 | 82 |
| Natural resources and environment | N/A | N/A | N/A | N/A | 38 | 38 | 32 | 38 |
| All other ¹ | N/A | N/A | N/A | N/A | 50 | 39 | 31 | 42 |
| Total nondefense ¹ | 178 | 282 | 279 | 291 | 295 | 297 | 345 | 428 |
| Total conduct of research and development ¹ | 940 | 1,054 | 1,125 | 1,495 | 1,848 | 1,848 | 1,895 | 2,326 |
| Memorandum: Conduct of research and development classified as grants (all nondefense) | 11 | 14 | 14 | 14 | 14 | 13 | 21 | 31 |

See footnotes at end of table.

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002—Continued

(in millions of dollars)

| Category | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| National defense: | | | | | | | | |
| Department of Defense | 1,882 | 2,178 | 4,950 | 5,517 | 6,466 | 6,689 | 6,792 | 7,419 |
| Other national defense | 252 | 281 | 414 | 420 | 456 | 401 | 352 | 446 |
| Total national defense | 2,134 | 2,459 | 5,364 | 5,937 | 6,922 | 7,090 | 7,144 | 7,865 |
| Nondefense: | | | | | | | | |
| General science, space, and technology: | | | | | | | | |
| NASA | 55 | 72 | 115 | 330 | 646 | 1,112 | 2,291 | 3,693 |
| NSF | 28 | 31 | 47 | 57 | 70 | 84 | 100 | 147 |
| Atomic energy general science | 91 | 126 | 157 | 183 | 214 | 231 | 264 | 288 |
| Subtotal | 174 | 229 | 319 | 570 | 930 | 1,427 | 2,655 | 4,128 |
| Energy | 77 | 109 | 129 | 159 | 173 | 397 | 462 | 502 |
| Transportation: | | | | | | | | |
| DOT | 13 | 26 | 53 | 77 | 89 | 83 | 111 | 107 |
| NASA | | | | | | 31 | 36 | 40 |
| Subtotal | 13 | 26 | 53 | 77 | 89 | 114 | 147 | 147 |
| Health: | | | | | | | | |
| NIH | N/A | N/A | N/A | 247 | 295 | 398 | 511 | 637 |
| Other | N/A | N/A | N/A | 30 | 35 | 36 | 40 | 66 |
| Subtotal | 134 | 157 | 216 | 277 | 330 | 434 | 551 | 703 |
| Agriculture | 86 | 97 | 104 | 107 | 117 | 129 | 142 | 154 |
| Natural resources and environment | 45 | 54 | 88 | 68 | 106 | 100 | 118 | 120 |
| All other ¹ | 48 | 57 | 111 | 127 | 119 | 146 | 146 | 177 |
| Total nondefense ¹ | 577 | 729 | 1,020 | 1,385 | 1,864 | 2,747 | 4,221 | 5,931 |
| Total conduct of research and development ¹ | 2,711 | 3,188 | 6,384 | 7,322 | 8,786 | 9,837 | 11,365 | 13,796 |
| Memorandum: Conduct of research and development classified as grants (all nondefense) | 40 | 46 | 55 | 57 | 58 | 66 | 75 | 85 |

See footnotes at end of table.

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002—Continued

(in millions of dollars)

| Category | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| National defense: | | | | | | | | |
| Department of Defense | 6,623 | 6,675 | 7,649 | 8,071 | 7,762 | 7,519 | 7,639 | 8,238 |
| Other national defense | 454 | 422 | 419 | 473 | 552 | 502 | 469 | 599 |
| Total national defense | 7,077 | 7,097 | 8,068 | 8,544 | 8,314 | 8,021 | 8,108 | 8,837 |
| Nondefense: | | | | | | | | |
| General science, space, and technology: | | | | | | | | |
| NASA | 4,497 | 5,275 | 5,042 | 4,462 | 4,025 | 3,518 | 3,143 | 3,059 |
| NSF | 147 | 176 | 209 | 248 | 280 | 292 | 334 | 407 |
| Atomic energy general science | 309 | 339 | 359 | 281 | 385 | 393 | 380 | 370 |
| Subtotal | 4,953 | 5,790 | 5,610 | 4,991 | 4,690 | 4,203 | 3,857 | 3,836 |
| Energy | 478 | 452 | 478 | 515 | 469 | 451 | 454 | 329 |
| Transportation: | | | | | | | | |
| DOT | 159 | 117 | 69 | 107 | 96 | 224 | 444 | 291 |
| NASA | 58 | 75 | 89 | 128 | 162 | 183 | 205 | 221 |
| Subtotal | 217 | 192 | 158 | 235 | 258 | 407 | 649 | 512 |
| Health: | | | | | | | | |
| NIH | 523 | 536 | 795 | 784 | 859 | 879 | 912 | 1,096 |
| Other | 67 | 202 | 110 | 199 | 214 | 194 | 211 | 279 |
| Subtotal | 590 | 738 | 905 | 983 | 1,073 | 1,073 | 1,123 | 1,375 |
| Agriculture | 179 | 205 | 215 | 231 | 232 | 246 | 268 | 296 |
| Natural resources and environment | 140 | 160 | 181 | 207 | 232 | 301 | 351 | 507 |
| All other ¹ | 206 | 284 | 347 | 466 | 392 | 451 | 599 | 611 |
| Total nondefense ¹ | 6,763 | 7,821 | 7,894 | 7,628 | 7,346 | 7,132 | 7,301 | 7,466 |
| Total conduct of research and development ¹ | 13,840 | 14,918 | 15,962 | 16,172 | 15,660 | 15,153 | 15,409 | 16,303 |
| Memorandum: Conduct of research and development classified as grants (all nondefense) | 100 | 110 | 125 | 140 | 152 | 167 | 182 | 206 |

See footnotes at end of table.

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002—Continued

(in millions of dollars)

| Category | 1973 | 1974 | 1975 | 1976 | TQ | 1977 | 1978 | 1979 |
|--|---------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|
| National defense: | | | | | | | | |
| Department of Defense | 8,529 | 8,960 | 9,284 | 9,341 | 2,312 | 10,210 | 10,726 | 11,045 |
| Other national defense | 610 | 446 | 431 | 478 | 143 | 664 | 1,351 | 1,083 |
| Total national defense | 9,139 | 9,406 | 9,715 | 9,819 | 2,455 | 10,874 | 12,077 | 12,129 |
| Nondefense: | | | | | | | | |
| General science, space, and technology: | | | | | | | | |
| NASA | 3,045 | 2,900 | 2,876 | 3,227 | 846 | 3,506 | 3,454 | 3,655 |
| NSF | 432 | 539 | 571 | 623 | 194 | 668 | 701 | 775 |
| Atomic energy general science | 372 | 292 | 310 | 257 | 72 | 267 | 274 | 305 |
| Subtotal | 3,849 | 3,731 | 3,757 | 4,107 | 1,112 | 4,441 | 4,429 | 4,735 |
| Energy | 379 | 525 | 933 | 1,424 | 521 | 2,197 | 2,542 | 3,304 |
| Transportation: | | | | | | | | |
| DOT | 299 | 322 | 307 | 329 | 100 | 315 | 326 | 350 |
| NASA | 235 | 283 | 309 | 324 | 82 | 336 | 379 | 408 |
| Subtotal | 534 | 605 | 616 | 653 | 182 | 651 | 705 | 758 |
| Health: | | | | | | | | |
| NIH | 1,318 | 1,413 | 1,631 | 2,098 | 548 | 1,314 | 2,439 | 2,626 |
| Other | 341 | 245 | 258 | 194 | 130 | 335 | 325 | 614 |
| Subtotal | 1,659 | 1,658 | 1,889 | 2,292 | 678 | 1,649 | 2,764 | 3,240 |
| Agriculture | 293 | 315 | 352 | 416 | 100 | 469 | 499 | 549 |
| Natural resources and environment | 539 | 511 | 647 | 646 | 166 | 585 | 675 | 895 |
| All other ¹ | 643 | 683 | 627 | 631 | -14 | 577 | 841 | 715 |
| Total nondefense ¹ | 7,896 | 8,028 | 8,821 | 10,169 | 2,745 | 10,569 | 12,455 | 14,196 |
| Total conduct of research and development ¹ | 17,035 | 17,434 | 18,536 | 19,988 | 5,200 | 21,443 | 24,532 | 26,325 |
| Memorandum: Conduct of research and development classified as grants (all nondefense) | 224 | 238 | 249 | 285 | 80 | 272 | 252 | 256 |

See footnotes at end of table.

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002—Continued

(in millions of dollars)

| Category | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| National defense: | | | | | | | | |
| Department of Defense | 13,469 | 15,739 | 18,363 | 20,566 | 23,850 | 28,165 | 33,396 | 34,732 |
| Other national defense | 1,174 | 1,199 | 1,447 | 1,732 | 1,915 | 2,195 | 2,260 | 2,365 |
| Total national defense | 14,643 | 16,937 | 19,809 | 22,298 | 25,765 | 30,360 | 35,656 | 37,097 |
| Nondefense: | | | | | | | | |
| General science, space, and technology: | | | | | | | | |
| NASA | 4,262 | 4,798 | 2,697 | 1,999 | 3,023 | 2,410 | 2,863 | 2,693 |
| NSF | 838 | 900 | 1,020 | 998 | 1,127 | 1,182 | 1,399 | 1,426 |
| Atomic energy general science | 345 | 501 | 401 | 464 | 505 | 510 | 510 | 576 |
| Subtotal | 5,445 | 6,199 | 4,118 | 3,461 | 4,656 | 4,102 | 4,772 | 4,695 |
| Energy | 3,289 | 3,681 | 3,330 | 2,728 | 2,762 | 4,249 | 2,622 | 2,321 |
| Transportation: | | | | | | | | |
| DOT | 412 | 409 | 341 | 270 | 342 | 467 | 489 | 347 |
| NASA | 449 | 481 | 523 | 539 | 515 | 559 | 568 | 557 |
| Subtotal | 861 | 890 | 864 | 809 | 857 | 1,027 | 1,057 | 905 |
| Health: | | | | | | | | |
| NIH | 2,898 | 3,352 | 3,435 | 3,532 | 3,942 | 4,412 | 4,837 | 4,942 |
| Other | 784 | 732 | 906 | 929 | 617 | 719 | 738 | 869 |
| Subtotal | 3,682 | 4,084 | 4,341 | 4,461 | 4,560 | 5,131 | 5,574 | 5,811 |
| Agriculture | 563 | 643 | 696 | 717 | 754 | 775 | 798 | 796 |
| Natural resources and environment | 951 | 912 | 838 | 856 | 846 | 884 | 924 | 886 |
| All other ¹ | 801 | 822 | 664 | 570 | 787 | 689 | 738 | 745 |
| Total nondefense ¹ | 15,592 | 17,231 | 14,850 | 13,602 | 15,221 | 16,856 | 16,485 | 16,159 |
| Total conduct of research and development ¹ | 30,235 | 34,168 | 34,660 | 35,900 | 40,986 | 47,216 | 52,141 | 53,256 |
| Memorandum: Conduct of research and development classified as grants (all nondefense) | 288 | 251 | 290 | 197 | 223 | 215 | 319 | 464 |

See footnotes at end of table.

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002—Continued

(in millions of dollars)

| Category | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| National defense: | | | | | | | | |
| Department of Defense | 35,605 | 37,819 | 38,247 | 35,330 | 35,504 | 37,666 | 35,474 | 35,356 |
| Other national defense | 2,427 | 2,547 | 2,831 | 2,557 | 2,666 | 2,730 | 2,581 | 2,343 |
| Total national defense | 38,032 | 40,366 | 41,078 | 37,887 | 38,170 | 40,396 | 38,055 | 37,699 |
| Nondefense: | | | | | | | | |
| General science, space, and technology: | | | | | | | | |
| NASA | 3,252 | 4,220 | 5,624 | 6,277 | 6,641 | 7,004 | 6,663 | 8,243 |
| NSF | 1,513 | 1,570 | 1,520 | 1,631 | 1,733 | 1,753 | 1,873 | 1,894 |
| Atomic energy general science | 618 | 680 | 784 | 834 | 784 | 789 | 669 | 700 |
| Subtotal | 5,383 | 6,470 | 7,927 | 8,741 | 9,157 | 9,546 | 9,205 | 10,837 |
| Energy | 2,287 | 2,454 | 2,342 | 2,501 | 2,593 | 2,517 | 2,654 | 3,152 |
| Transportation: | | | | | | | | |
| DOT | 323 | 322 | 272 | 333 | 373 | 420 | 519 | 604 |
| NASA | 580 | 755 | 701 | 795 | 976 | 1,084 | 1,215 | 749 |
| Subtotal | 903 | 1,077 | 973 | 1,127 | 1,348 | 1,504 | 1,734 | 1,353 |
| Health: | | | | | | | | |
| NIH | 6,022 | 6,634 | 7,092 | 7,257 | 7,936 | 9,063 | 9,620 | 10,299 |
| Other | 849 | 912 | 1,162 | 1,272 | 1,721 | 1,311 | 1,008 | 961 |
| Subtotal | 6,872 | 7,546 | 8,253 | 8,528 | 9,656 | 10,374 | 10,628 | 11,260 |
| Agriculture | 838 | 908 | 937 | 990 | 1,070 | 1,129 | 1,158 | 1,186 |
| Natural resources and environment | 1,052 | 1,056 | 1,220 | 1,323 | 1,593 | 1,762 | 1,747 | 1,662 |
| All other ¹ | 732 | 883 | 1,081 | 1,085 | 1,141 | 1,150 | 1,271 | 1,283 |
| Total nondefense ¹ | 18,068 | 20,394 | 22,732 | 24,296 | 26,558 | 27,982 | 28,397 | 30,733 |
| Total conduct of research and development ¹ | 56,100 | 60,760 | 63,810 | 62,183 | 64,728 | 68,378 | 66,453 | 68,432 |
| Memorandum: Conduct of research and development classified as grants (all nondefense) | 478 | 412 | 345 | 401 | 296 | 344 | 376 | 348 |

See footnotes at end of table.

Table 9.8—COMPOSITION OF OUTLAYS FOR THE CONDUCT OF RESEARCH AND DEVELOPMENT: 1949–2002—Continued

(in millions of dollars)

| Category | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 estimate | 2002 estimate |
|---|---------------|---------------|---------------|---------------|---------------|------------------|------------------|
| National defense: | | | | | | | |
| Department of Defense | 36,936 | 37,702 | 37,558 | 37,571 | 38,279 | 38,504 | 43,706 |
| Other national defense | 2,492 | 2,475 | 2,583 | 2,705 | 2,771 | 3,092 | 3,144 |
| Total national defense | 39,428 | 40,177 | 40,141 | 40,276 | 41,050 | 41,596 | 46,850 |
| Nondefense: | | | | | | | |
| General science, space, and technology: | | | | | | | |
| NASA | 6,963 | 8,137 | 8,631 | 8,316 | 5,411 | 5,724 | 6,298 |
| NSF | 2,077 | 2,015 | 2,010 | 2,144 | 2,446 | 2,644 | 2,928 |
| Atomic energy general science | 705 | 703 | 1,862 | 2,087 | 2,246 | 2,378 | 2,323 |
| Subtotal | 9,745 | 10,855 | 12,503 | 12,547 | 10,103 | 10,746 | 11,549 |
| Energy | 2,938 | 2,641 | 1,526 | 1,285 | 1,265 | 1,401 | 1,195 |
| Transportation: | | | | | | | |
| DOT | 534 | 545 | 528 | 465 | 482 | 566 | 778 |
| NASA | 1,120 | 1,237 | 1,250 | 1,117 | 958 | 901 | 879 |
| Subtotal | 1,654 | 1,782 | 1,778 | 1,582 | 1,440 | 1,467 | 1,657 |
| Health: | | | | | | | |
| NIH | 9,642 | 10,599 | 11,853 | 13,027 | 14,568 | 16,941 | 19,619 |
| Other | 856 | 859 | 865 | 1,306 | 1,310 | 1,480 | 1,568 |
| Subtotal | 10,498 | 11,458 | 12,718 | 14,333 | 15,878 | 18,421 | 21,187 |
| Agriculture | 1,168 | 1,178 | 1,200 | 1,200 | 1,294 | 1,465 | 1,467 |
| Natural resources and environment | 1,610 | 1,590 | 1,653 | 1,732 | 1,687 | 1,835 | 1,782 |
| All other ¹ | 1,398 | 1,392 | 1,284 | 1,181 | 1,230 | 1,444 | 1,559 |
| Total nondefense ¹ | 29,011 | 30,896 | 32,662 | 33,860 | 32,897 | 36,779 | 40,396 |
| Total conduct of research and development ¹ | 68,439 | 71,073 | 72,803 | 74,136 | 73,947 | 78,375 | 87,246 |
| Memorandum: Conduct of research and development classified as grants (all non-defense) | 303 | 290 | 302 | 308 | 405 | 486 | 581 |

¹ Includes off-budget Postal Service amounts as shown in the footnote to Table 9.7.

N/A: Separate detail not available; however, the data are included in the totals.

Note: The Atomic energy defense component includes relatively small amounts of R&D for FEMA beginning in 1983.