

Federal Funding Supports Moderate Growth for Basic Research in the 1990's

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Federal funding for basic research in FY 1999 comprises 22.5 percent of the projected R&D total compared with its 18.2-percent share in FY 1992.

Federal obligations for research and development (R&D) and R&D plant will increase an estimated 1.5 percent (0.5-percent decrease in inflation-adjusted 1992 dollars) from the previous year to \$75.3 billion for fiscal year (FY) 1999, according to a survey of Federal agencies conducted in 1998 (table 1). However, agencies project a 4.8-percent increase in the research portion of the R&D total (a 2.8-percent increase in constant 1992 dollars) and a 1-percent decrease in combined development and R&D plant support (down 2.9 percent in real terms). Research will account for 43.8 per-

cent of the total FY 1999 R&D money. Basic research support will reach almost \$17 billion dollars (up 6.6 percent in current dollars or 4.5 percent in constant 1992 dollars), and applied research will total slightly more than \$16 billion (up 3.0 percent or 1 percent in constant 1992 dollars), according to the preliminary estimates. As in the past, the Federal Government obligates the largest portion of R&D dollars for development: funding for development accounts for approximately 54 percent of the FY 1999 preliminary total R&D and R&D plant obligations. However, the development share of total R&D and R&D plant

Table 1. Federal obligations for research and development and R&D plant, by character of work: fiscal years 1990-99

Fiscal year	Total R&D and R&D plant	Basic research	Applied research	Development	R&D plant
[billions of current dollars]					
1990.....	65.831	11.286	10.337	41.937	2.272
1991.....	64.148	12.171	11.798	37.327	2.853
1992.....	68.577	12.490	12.001	41.102	2.985
1993.....	70.415	13.399	13.491	40.424	3.101
1994.....	69.451	13.523	13.888	39.824	2.215
1995.....	70.443	13.877	14.557	39.752	2.256
1996.....	69.401	14.460	13.800	39.395	1.746
1997.....	71.745	14.942	14.423	40.464	1.915
1998 preliminary.....	74.203	15.862	15.609	40.644	2.089
1999 preliminary.....	75.330	16.914	16.079	40.341	1.997
[billions of constant 1992 dollars] ¹					
1990.....	70.672	12.116	11.097	45.021	2.439
1991.....	66.030	12.528	12.144	38.422	2.936
1992.....	68.577	12.490	12.001	41.102	2.985
1993.....	68.604	13.054	13.144	39.384	3.021
1994.....	66.068	12.865	13.211	37.884	2.107
1995.....	65.334	12.871	13.502	36.869	2.093
1996.....	62.915	13.108	12.510	35.713	1.583
1997.....	63.637	13.254	12.794	35.892	1.698
1998 preliminary.....	64.592	13.807	13.587	35.379	1.818
1999 preliminary.....	64.286	14.434	13.721	34.426	1.704

¹Constant dollar estimates are calculated using fiscal year deflators from the Office of Management and Budget, FY 1999 Budget of the United States Government, Historical Tables, Table 10.1, pp. 169-170.

SOURCE: National Science Foundation/Division of Science Resource Studies, Survey of Federal Funds for Research and Development: Fiscal Years 1997, 1998, and 1999

Electronic Dissemination

SRS data are available through the World Wide Web (<http://www.nsf.gov/sbe/srs/>). For more information about obtaining reports, contact pubs@nsf.gov or call (301) 947-2722. For NSF's Telephonic Device for the Deaf, dial (703) 306-0090.

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has been decreasing throughout the 1990's, having declined from its 64-percent share in FY 1990. Agencies expect development funds to drop 0.7 percent (down 2.7 percent in constant 1992 dollars) from their FY 1998 level, to \$40.3 billion in FY 1999. R&D plant is slated to decrease 4.4 percent (down 6.3 percent in constant 1992 dollars) to nearly \$2 billion. The statistics presented here are calculated from the National Science Foundation's (NSF's) Annual Survey of Federal Funds for R&D, and are subject to change as Federal agencies' budgets are updated to reflect approved programs.

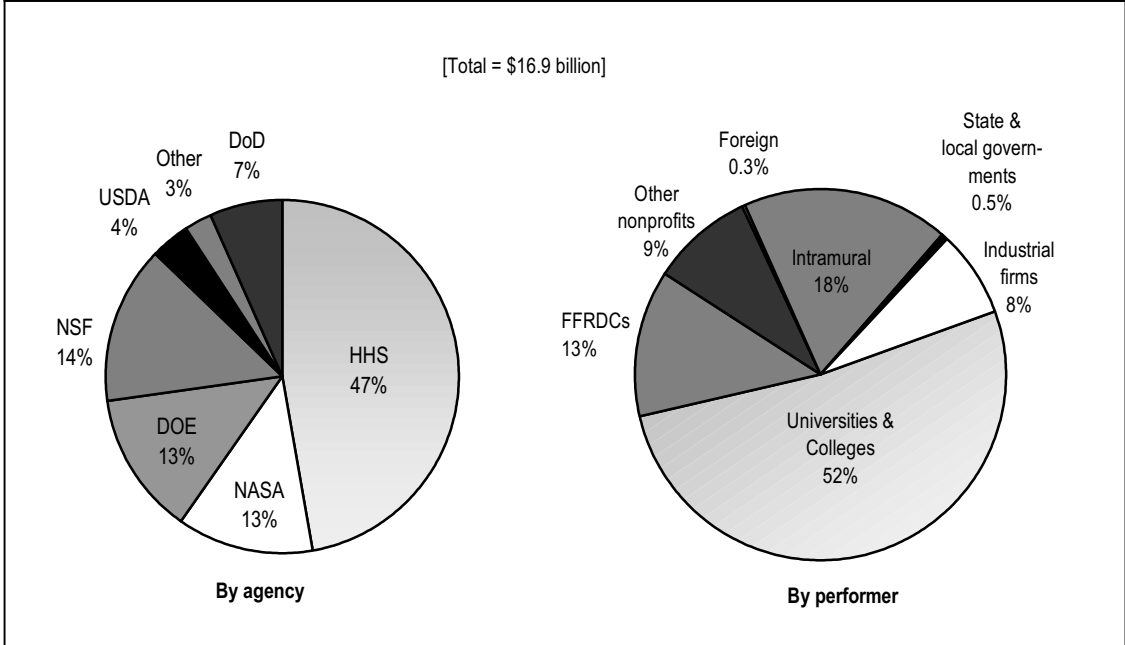
There is widespread support for basic research funding in both the Legislative and Executive branches of Government, as well as in academia and among scientific organizations. However, it is also recognized that such support needs to be balanced against budgetary constraints necessarily imposed on all Government projects, including R&D programs. The remainder of this Data Brief highlights recent survey data collected on Federal funding of basic research to better inform these ongoing budgetary discussions.

Agencies' Funding for Basic Research

The basic research share of Federal R&D obligations has been increasing slowly since FY 1992 when it comprised 18.2 percent of the R&D total. That percentage share increased slightly each year and reaches 22.5 percent in FY 1999, according to preliminary estimates. Overall, Federal agencies report a 4.6-percent average annual rate of growth in basic research support (2.0 percent in constant 1992 dollars) from FYs 1990-99. When adjusted for inflation, basic research funding has increased from about \$12 billion in FY 1990 to more than \$14 billion in FY 1999.

The six leading agencies that provide 97 percent of the total Federal basic research funding in FY 1999 (figure 1) are the Department of Health and Human Services (HHS), National Science Foundation (NSF), Department of Energy (DOE), National Aeronautics and Space Administration (NASA), Department of Defense (DoD), and Department of Agriculture (USDA). Of these six agencies, only NASA reports an expected current-dollar decrease in basic research funding for FY 1999, dropping 5.3 percent (down \$119.1 million).

Figure 1. Distribution of preliminary Federal obligations for basic research, by agency and performer: FY 1999



KEY: FFRDC = federally funded research and development centers

SOURCE: National Science Foundation/Division of Science Resource Studies, Survey of Federal Funds for Research and Development: Fiscal Years 1997, 1998, and 1999.

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Federal agencies expect that universities and colleges will receive more than half of all Federal basic research funds in FY 1999.

Each of the other five agencies expects strong to modest increases in basic research funding: NSF (12.8 percent), DoD (8.9 percent), HHS (8.4 percent), DOE (7.2 percent), and USDA (1.8 percent).

After adjusting for inflation, HHS expects its obligations for basic research to average 3.5-percent annual growth from FYs 1990-99. Second fastest, NSF expects to increase basic research funding with 2.3 percent real dollar growth during the same time period. DOE reports a basic research average annual funding growth rate of nearly 2 percent in inflation-adjusted dollars, and NASA reveals a nearly flat rate (0.4 percent). In constant 1992 dollars, DoD and USDA each expects slightly less funding for basic research in FY 1999 than was available in FY 1990.

Fields of Basic Research

Basic research obligations are reported for eight broad fields of science and engineering in the Federal Funds survey. In each of these fields, basic research support is expected to increase (in current dollars) in FY 1999: mathematics and computer sciences (up 12.4 percent from FY 1998), social sciences (11.4 percent), psychology (9.3 percent), life sciences (8.3 percent), physical sciences (5.7 percent), environmental sciences (2.1 percent), engineering (1.0 percent), and other sciences, not elsewhere classified (9.8 percent). Federal funding for

the life sciences is expected to account for nearly half (49.2 percent, \$8.3 billion) of the total basic research dollars in FY 1999. The next largest share of funding is for the physical sciences, slated for nearly a fifth (19.5 percent, \$3.3 billion) of the basic research dollars. Funding shares for each of the other six fields are expected to range from 2 to 10 percent of the basic research money.

Basic Research Performance

Universities and colleges are expected to receive an 8.6-percent increase in basic research obligations—to \$8.8 billion—in FY 1999 and thereby account for 51.8 percent of all Federal basic research funding (figure 1). Intramural performers of basic research, which covers Federal agencies' in-house performance and costs associated with the planning and administration of both internal and external basic research programs by Federal personnel, are slated to receive 18.1 percent of all Federal basic research funds. This will represent a 6.7-percent increase over the preliminary FY 1998 funding level. Federally Funded Research and Development Centers (such as Jet Propulsion Laboratory, Sandia National Laboratories, and Lincoln Laboratory) will get 13 percent of the total basic research funds, or \$2.2 billion (table 2). Industrial firms are to receive 7.6 percent of the basic research money, a decrease of 6.9 percent from their FY 1998 Federal funding level. Non-academic nonprofit organizations are to

Table 2. Preliminary Federal obligations for basic research, by agency and performer: fiscal year 1999

Agency	Total	Intramural	Industrial firms	FFRDCs	Univ. & colleges	Other nonprofits	State & local governments	Foreign
[millions of current dollars]								
Total	16,914	3,064	1,279	2,196	8,763	1,476	81	55
DoD.....	1,106	347	103	10	618	22	0	8
HHS.....	7,977	1,321	332	137	4,939	1,159	60	29
NASA.....	2,127	532	613	376	520	79	1	6
DOE.....	2,227	99	124	1,511	463	29	0	1
NSF.....	2,442	16	78	156	2,006	169	6	10
USDA.....	609	415	5	0	183	4	1	2
Other.....	426	335	23	6	35	15	11	0

SOURCE: National Science Foundation/Division of Science Resource Studies, Survey of Federal Funds for Research and Development: Fiscal Years 1997, 1998, and 1999

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receive 8.7 percent of the basic research funds, increasing \$75.6 million (or nearly 5.4 percent) over the FY 1998 funding level. State and local governments combined with foreign performers will receive less than one percent of all Federal basic research funds. The 32 Federal agencies that report R&D obligations to the Federal Funds survey submitted actual obligations for FY 1997 and preliminary data for FYs 1998 and 1999. Data were reported during the period February through August 1998. Agencies later revise the preliminary data on the ba-

sis of actual changes in the funding levels of R&D programs. Further, agencies may provide changes in prior-year data to reflect program reclassifications or other data corrections. As an example of recent revisions to preliminary estimates, during the period February through August 1997, Federal agencies projected total R&D and R&D plant obligations of \$72.0 billion for FY 1997. As detailed in table 1 of this Data Brief, agencies now report actual FY 1997 obligations of \$71.7 billion, a slight (0.3-percent) downward revision from earlier expectations.

The data presented in this Data Brief are being released in advance of comprehensive Detailed Statistical Tables Report, *Federal Funds for Research and Development: Fiscal Years 1997, 1998, and 1999, Volume 47*.

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