

DATA BRIEF

Federal Share of Academic R&D Climbed to 60 Percent in FY 1993

by M. Marge
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Federally financed academic R&D growth rate in FY 1993 outpaced nonfederal growth 5 to 1 after adjusting for inflation.

Total academic expenditures for separately budgeted research and development (R&D) in science and engineering (S&E) fields climbed to \$19.9 billion in FY 1993. This amount represents a 6-percent increase from the \$18.8 billion spent in FY 1992. Adjusted for inflation, the FY 1993 R&D increase was 3 percent.

Federally financed spending for separately budgeted R&D at universities and colleges reached \$11.9 billion in FY 1993, up nearly 8 percent over 1992 levels; nonfederal support reached \$7.9 billion, up 3 percent above that in the previous year. Adjusted for inflation, Federal dollars rose 5 percent and nonfederal expenditures, less than 1 percent. The 60-percent share of academia's R&D total provided by the Federal Government in 1993 indicates an upturn after a period of slow decline over the last decade from a 63-percent share in 1983 to a low of 58 percent in 1991.

The fastest growth rates in academic R&D support since the early 1980s, however, have occurred among nonfederal sponsors. For example, industrial support averaged increases of 10 percent per year since 1983, even after adjusting for inflation, and now accounts for a 7-percent share of academia's 1993 R&D total. Universities' own funds, the largest nonfederal source, have averaged 7 percent per year real growth. Cost sharing and underrecovery of indirect costs account for over one-half of the university contribution toward research activities. The remainder of institutional funds represents separately budgeted projects financed from discretionary or unrestricted university accounts. In constant dollars, State and local governments and all other sources, including foundations and voluntary health agencies,

each averaged 6-percent growth per year during the 1983-93 period (table 1).

Table 1. R&D expenditures at universities and colleges, by source of funds: FY 1983, 1992 and 1993

[Millions of dollars]

Source and field	Fiscal year 1993	Fiscal year 1992	Fiscal year 1983
Total.....	19,911	18,794	7,881
(In 1987 dollars) ^{1/}	16,122	15,623	9,059
Source of funds:			
Federal Government.....	11,957	11,090	4,989
State and local governments.....	1,559	1,491	626
Industry.....	1,374	1,291	389
Institutional funds.....	3,552	3,527	1,302
All other sources.....	1,469	1,395	576
Character of work:			
Basic research.....	13,270	12,504	5,303
Applied research and development.....	6,641	6,290	2,578

^{1/} Based on gross domestic product implicit price deflator.

SOURCE: National Science Foundation/SRS

Academic spending for basic research activities in 1993 totaled \$13.3 billion, representing growth of 6 percent (3 percent in 1987 dollars) over 1992 levels. The Federal share, \$8.4 billion, accounted for 63 percent of the basic research total. Expenditures in 1993 for applied research and development combined were approximately \$6.6 billion, up 6 percent (3 percent in real terms) over the previous year. The relative proportion of total academic R&D expenditures for basic research has remained relatively stable over the last 18 years—accounting for 65 to 69 percent of the annual academic R&D totals.

Academic R&D spending in all major science fields outpaced the 3-percent inflation rate

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from 1992 to 1993. R&D growth ranged from a low of 4 percent in the physical sciences to a high of 19 percent in the "all other sciences" category, which primarily represents multidisciplinary research. Engineering R&D increased 3 percent, to \$3.2 billion, in 1993 with mechanical engineering reflecting the largest gain, 6 percent, over 1992. Among all major S&E fields over the past decade, R&D spending has increased at the most rapid rate in computer sciences (12 percent in constant dollars).

R&D activities are highly concentrated within the academic sector. Separately budgeted academic R&D spending for the leading 20 research institutions in 1993 totaled \$6.4 billion, representing 32 percent of total and 35 percent of federally funded R&D spending, respectively (table 2). The 100 largest academic performers expended \$16.0 billion, accounting for 80 percent of the R&D total and 83 percent of federally financed expenditures, similar to shares reported during the past decade.

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Table 2. Twenty institutions reporting the largest R&D expenditures in the sciences and engineering: FY 1992-93

Institution	[Millions of dollars]			
	Total		Federal	
	Fiscal year 1993	Fiscal year 1992	Fiscal year 1993	Fiscal year 1992
Total 1/.....	19,911	18,794	11,957	11,090
Total, leading 20 institutions.....	6,441	6,218	4,234	3,992
1. Johns Hopkins U 2/.....	746	736	674	667
2. University of Michigan.....	426	393	250	223
3. U WI Madison.....	372	353	234	200
4. MA Institute of Tech.....	366	324	267	238
5. University of Washington.....	335	314	269	258
6. University of Minnesota.....	332	317	175	166
7. Texas A&M University.....	323	305	123	113
8. U CA San Francisco.....	315	296	210	202
9. Cornell University.....	311	299	195	180
10. U CA San Diego.....	307	282	243	220
11. Stanford University.....	307	368	254	266
12. U CA Berkeley.....	284	285	156	149
13. Pennsylvania State U.....	283	278	160	152
14. U CA Los Angeles.....	278	271	189	181
15. Harvard University.....	257	253	182	175
16. University of IL Urbana.....	253	252	141	129
17. U TX Austin.....	249	229	140	125
18. University of Arizona.....	236	222	113	106
19. U of Pennsylvania.....	234	222	174	160
20. U MD College Park.....	229	219	85	82
Total, all other institutions.....	13,470	12,576	7,723	7,098

NOTE: Data may not add to totals due to rounding.

1/ Data do not include R&D performed by university-administered federally funded research and development centers.

2/ For FY 1993, includes Applied Physics Laboratory with \$447 million in total and \$431 million in federally financed R&D expenditures.

SOURCE: National Science Foundation/SRS

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