

**Status on FY2002 Research Funding
at the University of Missouri**

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June 2004

Institutional Research and Planning
Office of Planning and Budget
University of Missouri System
P&B 2004, Report 3

<http://www.umsystem.edu/planning>

EXECUTIVE SUMMARY

This report highlights research funding at the University of Missouri using data provided by the National Science Foundation (NSF). More specifically, it examines research funding at the public AAU institutions and at the four campuses of the University of Missouri.

Data used in this study are from fiscal year 2002. Although more recent data are available for the University of Missouri, this is the most recent data available for all public AAU institutions. References to the “University of Missouri” or the “University” refer to the four-campus system. Trends in research funding have been examined from 1990-2002.

The key findings include:

Federal Research Expenditures

- On average, federal research expenditures at the University of Missouri have increased 72% since 1998 and 238% since 1990. This compares to an increase of 44% and 122%, respectively, at the public AAU institutions (Table 1).
- From 1995 to 2001, the University’s market share in federal research expenditures among the public AAU institutions increased from 1.06% to 1.55%. From 2001 to 2002, the University’s market share increased from 1.55 to 1.60. (Table 2).
- In terms of federal research expenditures, the University of Missouri ranked 26th among the 34 public AAU institutions in 2002. The University held the rank of 31st in 1990 (Table 3).
- Life sciences was the discipline where most of the public AAU universities made the highest percentage of their federal research expenditures. Except for the UMR campus, this was also the case for the University of Missouri campuses (Table 4).

ORGANIZATION

The report has been organized into the following sections:

Section I:	Federal Research Expenditures (Tables 1–5)
Section II:	Research Expenditures from Industry (Table 6)
Section III:	Research Expenditures by Source of Funds (Table 7)
Section IV:	Definitions and Technical Notes
Appendix A & B:	Research Expenditures and Campus Comparison Groups

SECTION I: FEDERAL RESEARCH EXPENDITURES

The federal research expenditures reported in this section include expenditures classified as science and engineering (S&E) research and development (R&D) funds. When trend data are examined, increases or decreases in funding are noted from various years as early as 1990 to 2002. In addition, a definition of *federal research expenditures* is provided in Section IV: Definitions and Technical Notes.

Federal Flow-Through Expenditures

Beginning in 1996, federal research expenditures for the University of Missouri include federal flow-through expenditures. Originating from a federal agency, these expenditures have been awarded to industry, state agencies in Missouri, foundations, or another college or university and then passed on to the University of Missouri. The University has typically classified these expenditures based on the intermediary (i.e., industry, etc.). In 1996, however, the University of Missouri began classifying these expenditures based on their original source, the federal government. Consequently, the increase in federal research expenditures in fiscal years 1996 to 2002 for the University of Missouri can be partially attributed to this NSF-accepted classification method.

Please note that annual totals in research expenditures for FY1996 and FY1997 were retroactively changed in 1999. Consequently, these revised totals will not match previously published figures for these two fiscal years.

Table 1:

Public AAU Institutions: Trends in Federal Research Expenditures for Science and Engineering

Table 1 shows the trend in federal research expenditures for the public AAU institutions and the four campuses of the University of Missouri. Percentage increases in funds are displayed for 1990 and 1998.

- On average, federal research expenditures at the University of Missouri have increased 72% over the past five years and 238% over the past ten years. This compares to an increase of 44% and 122%, respectively, at the public AAU institutions.
- Only one other institution (University of Pittsburgh) had such a high percentage gain from 1990-2002 as the University of Missouri. In the period from 1998-2002, only two other institutions (University of Pittsburgh and University of California-Irvine) had higher percentage gain than the University of Missouri.

**Table 1. Trends in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions,
1990, 1998-2002**

(\$ in thousands)

Institution	1990	1998	1999	2000	2001	2002	% increase since 1990	% increase since 1998
University of Pittsburgh	90,700	168,511	194,618	228,155	268,571	306,913	238%	82%
U CA Irvine	52,492	65,902	75,505	88,274	101,735	115,548	120%	75%
SUNY at Buffalo	66,876	76,037	85,490	96,410	96,595	128,842	93%	69%
University of Kansas	26,786	50,567	57,272	68,950	74,494	82,663	209%	63%
University of Virginia	58,801	93,328	108,495	119,243	122,868	152,358	159%	63%
U CA Los Angeles	164,442	233,702	251,999	274,162	312,858	366,762	123%	57%
University of Florida	64,614	106,510	122,296	120,374	139,744	167,108	159%	57%
U of Iowa	79,046	115,312	122,638	140,764	155,249	180,743	129%	57%
U CA Davis	77,424	114,912	124,463	141,740	154,937	176,644	128%	54%
Pennsylvania State U	136,656	186,274	199,105	226,074	245,951	284,706	108%	53%
Michigan State University	58,221	81,146	89,835	97,112	112,359	122,595	111%	51%
U MD at College Park	66,410	129,198	145,081	136,605	145,515	194,095	192%	50%
University of Colorado	116,394	228,342	244,686	300,394	308,643	340,466	193%	49%
U of NC Chapel Hill	92,468	171,505	182,935	194,794	221,615	254,571	175%	48%
U of Washington	203,353	336,748	368,112	389,622	435,103	487,059	140%	45%
University of Minnesota	143,810	204,741	207,761	229,958	264,289	295,301	105%	44%
U WI-Madison	178,862	240,513	249,961	278,629	304,009	345,003	93%	43%
Ohio State University	78,878	124,177	135,216	132,219	161,092	177,883	126%	43%
University of Michigan	180,456	311,450	334,226	364,033	396,117	444,255	146%	43%
Iowa State University	34,043	51,196	54,179	59,976	62,024	71,419	110%	40%
Indiana University	57,155	95,840	102,262	107,577	116,781	132,759	132%	39%
University of Oregon	20,151	27,041	27,336	30,793	32,232	37,177	84%	37%
U CA San Diego	182,555	262,303	292,007	326,037	343,276	359,383	97%	37%
U TX at Austin	109,593	165,082	164,913	178,889	195,184	219,158	100%	33%
University of Arizona	92,920	161,999	178,126	187,161	199,484	211,772	128%	31%
Rutgers the State U NJ	40,977	69,829	75,664	79,711	77,156	91,205	123%	31%
U CA Berkeley	131,717	171,135	191,025	208,338	208,080	217,297	65%	27%
U of IL Urbana-Champaign	117,168	168,871	185,767	193,490	195,316	214,323	83%	27%
U of Nebraska at Lincoln	22,686	41,888	36,977	37,831	43,877	51,405	127%	23%
SUNY at Stony Brook	55,911	91,531	93,937	96,641	93,265	108,122	93%	18%
Purdue University	64,464	92,844	95,708	92,010	98,151	107,477	67%	16%
U CA Santa Barbara	47,873	68,408	74,026	80,754	76,828	78,370	64%	15%
Texas A&M University	93,001	144,938	149,151	149,639	149,382	163,488	76%	13%
Public AAU Institution Average	91,118	140,963	152,145	165,344	179,175	202,632	122%	44%
University of Missouri:*								
Columbia	24,422	45,448	53,875	65,420	68,435	77,742	218%	71%
Kansas City	2,767	6,199	7,206	7,490	8,176	10,795	290%	74%
Rolla	3,863	7,934	8,731	9,804	11,929	15,749	308%	99%
St Louis	1,167	3,975	4,841	4,523	4,321	4,755	307%	20%
University Total	32,219	63,556	74,653	87,237	92,861	109,041	238%	72%

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU in 2000 and were then added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2002, B-33.

* Federal flow-through funds are included in the University of Missouri figures beginning in FY 1996.

**Figure 1. Trends in Federal Expenditures at Public AAU Institutions
(\$ in thousands)**

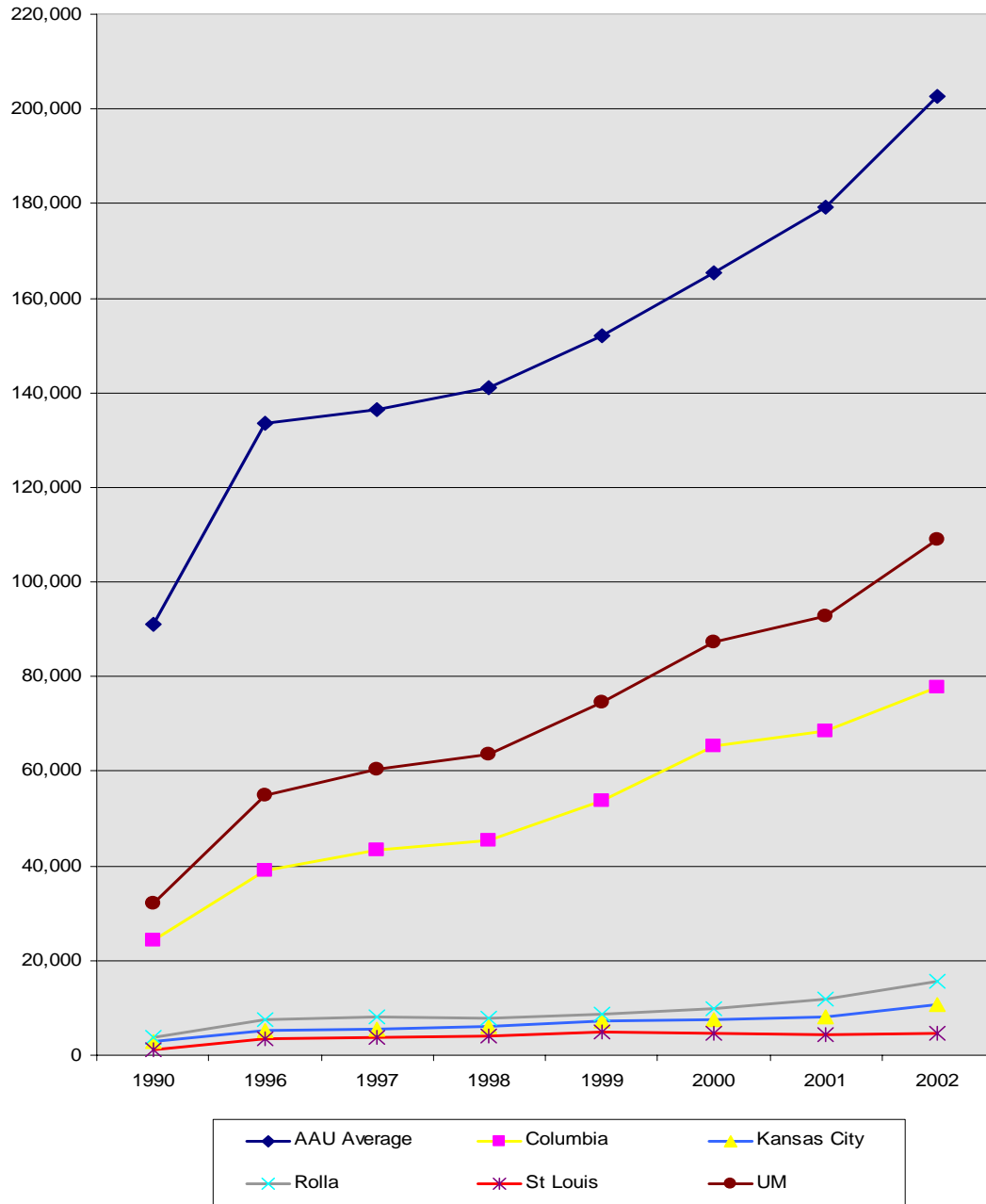


Table 2:

Public AAU Institutions: Market Share Increases and Decreases in Federal Research Expenditures

An alternative approach to understanding how well the University of Missouri has "competed" with other public AAU institutions is to examine the market share of each institution over time. That is, of the total federal research expenditures secured by the public AAU institutions in a given year, what percentage of that total has each institution secured? How has that institution's market share shifted from year to year? One advantage of market share analysis is that it helps to level the playing field among major and less-than-major players who compete for research dollars. In Table 2, the market share of federal research expenditures has been calculated for the public AAU institutions in 1995, 2000, 2001, and 2002.

- Among the public AAU institutions, the market share for the University of Missouri increased from 1.06 in 1995 to 1.57 in 2000. However from 2000 to 2001, the University's market share decreased from 1.57 to 1.55. Then, in 2002, the University market share increased from 1.55 to 1.60.

Table 2. Market Share Gain or Loss in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions, 1995, 2000-2002

Institution	(\$ in thousands)								Market Share +/- since 1995
	1995		2000		2001		2002		
	\$	Market Share	\$	Market Share	\$	Market Share	\$	Market Share	
University of Pittsburgh	144,487	3.35	228,155	4.12	268,571	4.47	306,913	4.52	1.16
University of Colorado	169,666	3.94	300,394	5.42	308,643	5.14	340,466	5.01	1.07
U CA Los Angeles	201,773	4.68	274,162	4.95	312,858	5.21	366,762	5.40	0.72
U MD at College Park	94,071	2.18	136,605	2.46	145,515	2.42	194,095	2.86	0.67
University of Florida	79,361	1.84	120,374	2.17	139,744	2.33	167,108	2.46	0.62
U of Missouri-Total	45,600	1.06	87,237	1.57	92,861	1.55	109,041	1.60	0.55
U of Washington	291,284	6.76	389,622	7.03	435,103	7.24	487,059	7.17	0.41
U of Iowa	103,115	2.39	140,764	2.54	155,249	2.59	180,743	2.66	0.27
University of Virginia	85,244	1.98	119,243	2.15	122,868	2.05	152,358	2.24	0.26
University of Kansas	42,209	0.98	68,950	1.24	74,494	1.24	82,663	1.22	0.24
SUNY at Buffalo	75,713	1.76	96,410	1.74	96,595	1.61	128,842	1.90	0.14
University of Michigan	275,956	6.40	364,033	6.57	396,117	6.60	444,255	6.54	0.14
U of NC Chapel Hill	156,626	3.63	194,794	3.51	221,615	3.69	254,571	3.75	0.11
U CA Irvine	69,655	1.62	88,274	1.59	101,735	1.69	115,548	1.70	0.08
Michigan State University	77,499	1.80	97,112	1.75	112,359	1.87	122,595	1.80	0.01
University of Oregon	23,789	0.55	30,793	0.56	32,232	0.54	37,177	0.55	0.00
Indiana University	86,041	2.00	107,577	1.94	116,781	1.94	132,759	1.95	-0.04
U of IL Urbana-Champaign	139,078	3.23	193,490	3.49	195,316	3.25	214,323	3.15	-0.07
U of Nebraska at Lincoln	36,897	0.86	37,831	0.68	43,877	0.73	51,405	0.76	-0.10
U TX at Austin	143,939	3.34	178,889	3.23	195,184	3.25	219,158	3.22	-0.11
Pennsylvania State U	187,481	4.35	226,074	4.08	245,951	4.10	284,706	4.19	-0.16
University of Minnesota	194,819	4.52	229,958	4.15	264,289	4.40	295,301	4.35	-0.17
SUNY at Stony Brook	76,505	1.77	96,641	1.74	93,265	1.55	108,122	1.59	-0.18
Ohio State University	122,660	2.85	132,219	2.39	161,092	2.68	177,883	2.62	-0.23
U WI-Madison	229,381	5.32	278,629	5.03	304,009	5.06	345,003	5.08	-0.24
U CA Davis	122,645	2.84	141,740	2.56	154,937	2.58	176,644	2.60	-0.25
Iowa State University	58,766	1.36	59,976	1.08	62,024	1.03	71,419	1.05	-0.31
U CA Santa Barbara	63,443	1.47	80,754	1.46	76,828	1.28	78,370	1.15	-0.32
Rutgers the State U NJ	72,567	1.68	79,711	1.44	77,156	1.28	91,205	1.34	-0.34
U CA Berkeley	157,826	3.66	208,338	3.76	208,080	3.46	217,297	3.20	-0.46
Purdue University	93,256	2.16	92,010	1.66	98,151	1.63	107,477	1.58	-0.58
Texas A&M University	136,734	3.17	149,639	2.70	149,382	2.49	163,488	2.41	-0.77
University of Arizona	168,791	3.92	187,161	3.38	199,484	3.32	211,772	3.12	-0.80
U CA San Diego	284,445	6.60	326,037	5.88	343,276	5.72	359,383	5.29	-1.31
	4,311,322	100.00	5,543,596	100.00	6,005,641	100.00	6,795,911	100.00	

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU with the 2000 data and are included for only the second time with this table.

Market Share (MS): An institution's federal research expenditures in a given year divided by the federal research expenditures for all public AAU institutions in the same year.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2002, B-33.

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Table 3:
Public AAU Institutions: The University of Missouri's Rank in Federal Research Expenditures

Table 3 ranks the public AAU institutions in terms of federal research dollars secured in 1990 and 2002.

- The University of Missouri ranked 26th among the 34 public AAU institutions in 2002. This is an improvement over its 1990 ranking (31st).

Table 3. Federal Expenditures for Science and Engineering R&D: Changes in Rank Among the Public AAU Institutions between 1990 and 2002

(\$ in thousands)

1990			2002		
Rank	Institution	\$	Rank	Institution	\$
1	U of Washington	203,353	1	U of Washington	487,059
2	U of California-San Diego	182,555	2	University of Michigan	444,255
3	U of Michigan	180,456	3	U CA Los Angeles	366,762
4	U of Wisconsin-Madison	178,862	4	U CA San Diego	359,383
5	U of California-Los Angeles	164,442	5	U WI-Madison	345,003
6	U of Minnesota	143,810	6	University of Colorado	340,466
7	Pennsylvania State U	136,656	7	University of Pittsburgh	306,913
8	U of California-Berkeley	131,717	8	University of Minnesota	295,301
9	U of Illinois-Urbana	117,168	9	Pennsylvania State U	284,706
10	U of Colorado	116,394	10	U of NC Chapel Hill	254,571
11	U of Texas-Austin	109,593	11	U TX at Austin	219,158
12	Texas A&M University	93,001	12	U CA Berkeley	217,297
13	U of Arizona	92,920	13	U of IL Urbana-Champaign	214,323
14	U of N Carolina-Chapel Hill	92,468	14	University of Arizona	211,772
15	U of Pittsburgh	90,700	15	U MD at College Park	194,095
16	U of Iowa	79,046	16	U of Iowa	180,743
17	Ohio State U	78,878	17	Ohio State University	177,883
18	U of California-Davis	77,424	18	U CA Davis	176,644
19	SUNY-Buffalo	66,876	19	University of Florida	167,108
20	U of Maryland-College Park	66,410	20	Texas A&M University	163,488
21	U of Florida	64,614	21	University of Virginia	152,358
22	Purdue U	64,464	22	Indiana University	132,759
23	U of Virginia	58,801	23	SUNY at Buffalo	128,842
24	Michigan State U	58,221	24	Michigan State University	122,595
25	Indiana U	57,155	25	U CA Irvine	115,548
26	SUNY at Stony Brook	55,911		U of Missouri-Total	109,041
27	U of California-Irvine	52,492	26	SUNY at Stony Brook	108,122
28	U of California-Santa Barbara	47,873	27	Purdue University	107,477
29	Rutgers, the State U of NJ	40,977	28	Rutgers the State U NJ	91,205
30	Iowa State U	34,043	29	University of Kansas	82,663
	University Of Missouri-Total	32,219	30	U CA Santa Barbara	78,370
31	U of Kansas	26,786	31	University of Missouri-Columbia	77,742
32	U of Missouri-Columbia	24,422	32	Iowa State University	71,419
33	U of Nebraska-Lincoln	22,686	33	U of Nebraska at Lincoln	51,405
34	U of Oregon	20,151	34	University of Oregon	37,177

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU in 2000 and were added in the table above again this year.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2002, B-33.

Table 4:
Distribution of Federal Research Expenditures by Field

Table 4 displays the federal research expenditures by discipline area for the University of Missouri and other public AAU institutions.

- In 2002, the majority of federal research funds expended by the public AAU institutions were in the life sciences (55%) followed by engineering (15%), the physical sciences (11%) and environmental sciences (6%).
- Seventeen of the thirty-four public AAU institutions in 2002 relied on one disciplinary area to provide the majority of their federal research expenditures. In every one of these cases the discipline area was life sciences.
- Where Columbia and Kansas City secured 73% and 82% of their federal expenditures from life sciences, respectively, Rolla garnered 81% of its federal funds in engineering. St Louis received 22% in the physical sciences and 39% of its federal funding in life sciences.

Table 4. Federal R&D Expenditures at the Public AAU Institutions by Science and Engineering Field, FY2002

Institution	Engi- neering	Physical	Environ- mental	Math & computer	Life sciences	Psy- chology	Social sciences	Other sciences	Total
	Row Percentages								(in thousands)
Indiana University	0	13	13	3	1	5	3	0	132,759
Iowa State University	27	8	3	7	45	0	10	1	71,419
Michigan State University									122,595
Ohio State University	15	9	3	2	61	3	6	0	177,883
Pennsylvania State U	43	14	5	3	29	3	3	0	284,706
Purdue University	28	13	2	6	45	2	3	0	107,477
Rutgers the State U NJ	15	18	13	6	41	4	3	0	91,205
SUNY at Buffalo	19	6	0	3	69	2	1	0	128,842
SUNY at Stony Brook	8	16	12	6	53	3	1	0	108,122
Texas A&M University	22	9	34	6	26	1	1	0	163,488
U CA Berkeley	25	25	2	3	39	3	2	1	217,297
U CA Davis	10	8	8	2	70	0	2	1	176,644
U CA Irvine	7	12	3	4	68	3	3	0	115,548
U CA Los Angeles	9	9	2	3	73	2	2	0	366,762
U CA San Diego	8	8	20	11	50	1	1	0	359,383
U CA Santa Barbara									78,370
U of IL Urbana-Champaign	29	14	5	25	21	3	2	1	214,323
U of Iowa	6	8	1	1	82	2	1	0	180,743
U MD at College Park	23	30	4	11	14	2	17	0	194,095
U of NC Chapel Hill	0	5	3	3	75	2	12	0	254,571
U of Nebraska at Lincoln	12	14	5	6	47	7	5	3	51,405
U of Washington	9	4	13	2	70	2	1	0	487,059
U WI-Madison	17	10	7	3	53	5	5	0	345,003
U TX at Austin	36	24	5	17	13	2	3	0	219,158
University of Arizona									211,772
University of Colorado	8	16	16	2	53	2	3	0	340,466
University of Florida	19	11	2	4	61	3	2	0	167,108
University of Kansas	10	6	3	1	73	2	4	2	82,663
University of Michigan	23	5	1	1	54	2	14	0	444,255
University of Minnesota									295,301
University of Oregon	0	19	4	7	42	23	5	0	37,177
University of Pittsburgh	3	4	0	1	88	2	2	0	306,913
University of Virginia	15	8	3	3	68	3	1	0	152,358
Public AAU Distribution	15	11	6	5	55	2	4	0	6,686,870
University of Missouri:									
Columbia	8	4	1	2	73	4	8	0	77,742
Rolla	81	14	3	0	1	0	0	0	15,749
Kansas City	0	7	3	3	82	4	0	0	10,795
St Louis	1	22	0	6	39	17	15	0	4,754
University Total	17	6	1	2	62	4	7	0	109,040

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU and have been added to the table above for only the second time with this table.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2002, B-43.

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***Table 5:
Public AAU Institutions: Market Share of Federal Research Expenditures within Each Discipline Area***

Table 5 displays each public AAU institution's market share within the eight discipline areas. The University of Missouri's federal research expenditures from the four campuses are pooled.

- The discipline areas where the University of Missouri secured the most significant market share were in psychology and other sciences (2.4%) and social sciences (2.5%).
- Market share leaders in each discipline area were: Pennsylvania State University in engineering (11.8%), the University of Maryland at College Park in the physical sciences (7.5%), the University of California, San Diego in environmental sciences (16.9%), University of Illinois Urbana-Champaign in math and computer science (16.6%), the University of Washington in life sciences (9.1%), University Wisconsin-Madison in psychology (10.9%), University of Michigan in the social sciences (21.8%) and University of Illinois Urbana-Champaign in other sciences (14.3%).

Table 5. Market Share in Federal R&D Expenditures by Discipline Area Among the Public AAU Institutions, FY 2002

Institution	Engi- neering	Physical	Environ- mental	Math & computer	Life sciences	Psy- chology	Social sciences	Other sciences	Total
									(\$ in thousands)
U of Washington	4.0	2.6	14.4	3.2	9.1	4.4	1.3	0.0	487,059
University of Michigan	9.9	2.8	0.7	1.8	6.4	4.9	21.8	0.2	444,255
U CA Los Angeles	3.2	4.4	2.0	3.3	7.1	4.2	2.0	12.3	366,762
U CA San Diego	2.9	3.7	16.9	12.3	4.7	3.1	1.3	0.0	359,383
U WI-Madison	5.7	4.3	5.4	3.1	4.9	10.9	6.0	0.0	345,003
University of Colorado	2.5	6.9	13.0	1.9	4.8	4.2	3.4	5.3	340,466
University of Pittsburgh	0.9	1.6	0.1	1.1	7.2	3.2	2.1	0.0	306,913
University of Minnesota	2.8	2.4	1.3	3.5	5.9	3.9	1.4	0.0	295,301
Pennsylvania State U	11.8	5.2	3.5	2.3	2.2	4.5	3.2	6.6	284,706
U of NC Chapel Hill	0.0	1.7	2.0	2.4	5.1	2.7	10.3	0.0	254,571
U TX at Austin	7.7	6.9	2.4	11.5	0.7	2.8	2.1	7.1	219,158
U CA Berkeley	5.3	7.2	0.8	2.0	2.3	3.7	1.7	8.6	217,297
U of IL Urbana-Champaign	6.0	4.0	2.3	16.6	1.2	3.2	1.5	14.3	214,323
University of Arizona	2.5	5.6	1.4	2.4	3.2	1.3	2.9	0.0	211,772
U MD at College Park	4.4	7.5	1.9	6.5	0.7	1.8	11.3	0.0	194,095
U of Iowa	1.1	1.9	0.2	0.4	3.9	2.3	0.6	0.1	180,743
Ohio State University	2.6	2.0	1.1	1.2	2.9	3.1	4.0	3.9	177,883
U CA Davis	1.6	1.8	3.3	0.8	3.3	0.3	1.4	8.0	176,644
University of Florida	3.0	2.3	0.6	1.8	2.7	2.9	1.2	0.0	167,108
Texas A&M University	3.5	1.9	13.0	3.1	1.1	1.4	0.5	0.1	163,488
University of Virginia	2.1	1.6	0.9	1.5	2.7	2.6	0.3	1.0	152,358
Indiana University	0.0	2.3	0.3	1.1	2.6	4.0	2.3	0.6	132,759
SUNY at Buffalo	2.4	1.0	0.1	1.2	2.4	1.2	0.5	0.0	128,842
Michigan State University	0.8	3.5	0.1	1.3	1.8	2.3	3.5	0.0	122,595
U CA Irvine	0.8	1.8	0.7	1.6	2.1	2.1	1.1	0.0	115,548
University of Missouri-Total	1.8	0.9	0.4	0.7	1.8	2.4	2.5	2.4	109,040
SUNY at Stony Brook	0.9	2.3	2.9	2.1	1.5	1.6	0.4	0.0	108,122
Purdue University	2.9	1.9	0.6	2.0	1.3	1.5	1.2	0.5	107,477
Rutgers the State U NJ	1.4	2.1	2.7	1.5	1.0	2.3	0.9	0.0	91,205
University of Kansas	0.8	0.6	0.6	0.2	1.6	0.9	1.0	11.0	82,663
U CA Santa Barbara	2.4	2.5	2.7	2.7	0.1	2.8	2.0	3.1	78,370
Iowa State University	1.8	0.8	0.5	1.5	0.8	0.0	2.5	3.8	71,419
U of Nebraska at Lincoln	0.6	1.0	0.6	1.0	0.6	2.3	0.9	10.9	51,405
University of Oregon	0.0	0.9	0.3	0.8	0.4	5.0	0.6	0.0	37,177
Public AAU Distribution	882,287	690,823	412,630	257,368	2,940,348	126,891	215,659	17,586	6,795,910

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU in 2000 and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2002.

SECTION II: RESEARCH EXPENDITURES FROM INDUSTRY

Table 6:
Public AAU Institutions: Industry-Sponsored Research Expenditures

Table 6 shows the growth in industry-sponsored research expenditures for the public AAU institutions from 1990 to 2002 and the gain or loss from 1998 to 2002. The institutions are arranged in descending order based on gain or loss since 1998. Please note that a definition of *industry-sponsored research expenditures* is provided in Section III: Definitions and Technical Notes.

- Ohio State University, SUNY at Buffalo, and University of Washington show the largest gains in industry-sponsored research expenditures among the public AAU institutions.
- The institutions that lead the public AAU group in terms of industry-sponsored research are Pennsylvania State University (\$67.1 million) and Ohio State University (\$51.1 million)
- The University of Missouri secured \$9.8 million in industry-sponsored research expenditures in 2001 and \$10.9 million in 2002.

Table 6. Industry-Sponsored R&D Expenditures at Public AAU Institutions 1990 to 2002

Institution	(\$ in thousands)									\$ Gain/Loss since 1998
	1990	1995	1996	1997	1998	1999	2000	2001	2002	
Ohio State University	14,744	21,827	30,870	36,685	40,401	52,034	57,075	54,736	51,135	10,734
SUNY at Buffalo	2,118	13,390	13,186	14,480	3,021	5,485	5,590	11,598	12,726	9,705
U of Washington	22,215	36,892	36,180	37,744	38,370	51,319	57,405	43,312	46,702	8,332
U CA Santa Barbara	2,655	2,576	2,988	2,876	3,666	4,742	5,499	6,001	10,482	6,816
University of Arizona	10,246	15,300	13,106	14,964	16,392	16,660	22,412	22,934	23,104	6,712
U CA Davis	7,461	8,053	9,387	9,362	14,077	16,242	17,891	16,989	20,754	6,677
U CA San Diego	9,135	11,363	15,130	19,266	26,814	31,356	34,541	36,845	32,299	5,485
U CA Berkeley	10,892	13,842	15,128	17,125	20,483	21,928	27,851	26,791	24,999	4,516
Michigan State University	4,557	7,853	6,818	6,973	7,250	7,647	11,230	10,953	11,458	4,208
U CA Los Angeles	8,310	14,892	15,788	19,586	27,817	34,404	33,427	32,539	31,686	3,869
Pennsylvania State U	34,806	50,225	52,771	56,666	63,319	65,698	64,393	67,658	67,131	3,812
U MD at College Park	14,229	25,431	24,044	5,009	2,127	3,053		7,315	5,078	2,951
Rutgers the State U NJ	6,754	7,797	7,079	8,848	9,038	9,833	8,843	10,965	11,772	2,734
Purdue University	11,632	25,147	25,720	26,090	26,988	28,856	29,997	29,765	29,614	2,626
University of Pittsburgh	6,481	8,208	7,880	9,753	10,436	12,990	14,676	14,817	13,023	2,587
University of Minnesota	18,086	23,427	23,726	24,196	24,094	23,933	26,392	26,454	26,572	2,478
U WI Madison	12,123	12,948	13,871	14,832	14,371	14,172	16,127	17,237	16,746	2,375
Iowa State University	5,525	8,017	7,407	8,499	13,717	14,905	15,075	13,177	16,047	2,330
U of Nebraska Lincoln	3,394	3,145	3,465	4,651	4,721	5,466	5,991	5,908	6,805	2,084
U of Iowa	6,827	11,359	14,862	15,712	17,262	20,778	17,262	21,394	19,169	1,907
University of Colorado	7,426	7,607	8,902	9,403	9,963	9,867	9,291	9,002	11,822	1,859
U of NC Chapel Hill	2,179	2,403	2,592	3,311	4,860	5,886	6,835	6,971	6,601	1,741
University of Michigan	27,128	28,987	34,975	31,411	33,029	34,432	35,515	34,439	33,252	223
Texas A&M University	26,197	31,452	26,947	31,816	33,674	34,722	31,084	35,110	33,300	-374
SUNY at Stony Brook	2,426	5,850	5,848	7,119	6,908	7,416	7,567	7,026	5,947	-961
Indiana University	2,316	5,815	5,357	4,242	6,333	4,820	5,384	6,375	5,312	-1,021
U CA Irvine	3,115	9,139	10,391	10,445	15,712	16,539	18,615	15,803	14,261	-1,451
U of IL Urbana-Champaign	20,762	11,832	12,365	11,761	13,917	12,864	12,693	10,992	11,796	-2,121
University of Florida	12,237	10,611	23,532	25,217	21,393	28,183	34,879	36,417	19,017	-2,376
University of Kansas	4,473	8,149	9,356	8,201	8,281	14,393	15,712	4,155	5,098	-3,183
University of Virginia	6,406	15,442	4,552	7,627	12,400	12,989	17,266	7,733	9,026	-3,374
U TX Austin	3,507	3,257	15,029	29,887	31,326	39,729	24,740	30,310	26,114	-5,212
Public AAU Average	10,324	14,445	15,602	16,680	18,193	20,729	22,299	21,304	20,589	
University of Missouri:										
Columbia	9,130	10,114	3,158	3,777	4,348	3,832	4,007	4,654	5,042	694
Kansas City	1,383	636	154	348	505	427	660	1,665	1,371	866
Rolla	2,186	1,316	2,364	1,575	1,361	2,079	2,543	3,088	4,282	2,921
St Louis	69	409	191	274	273	386	461	395	205	-68
University Total	12,768	12,475	5,867	5,974	6,487	6,724	7,671	9,802	10,900	4,413

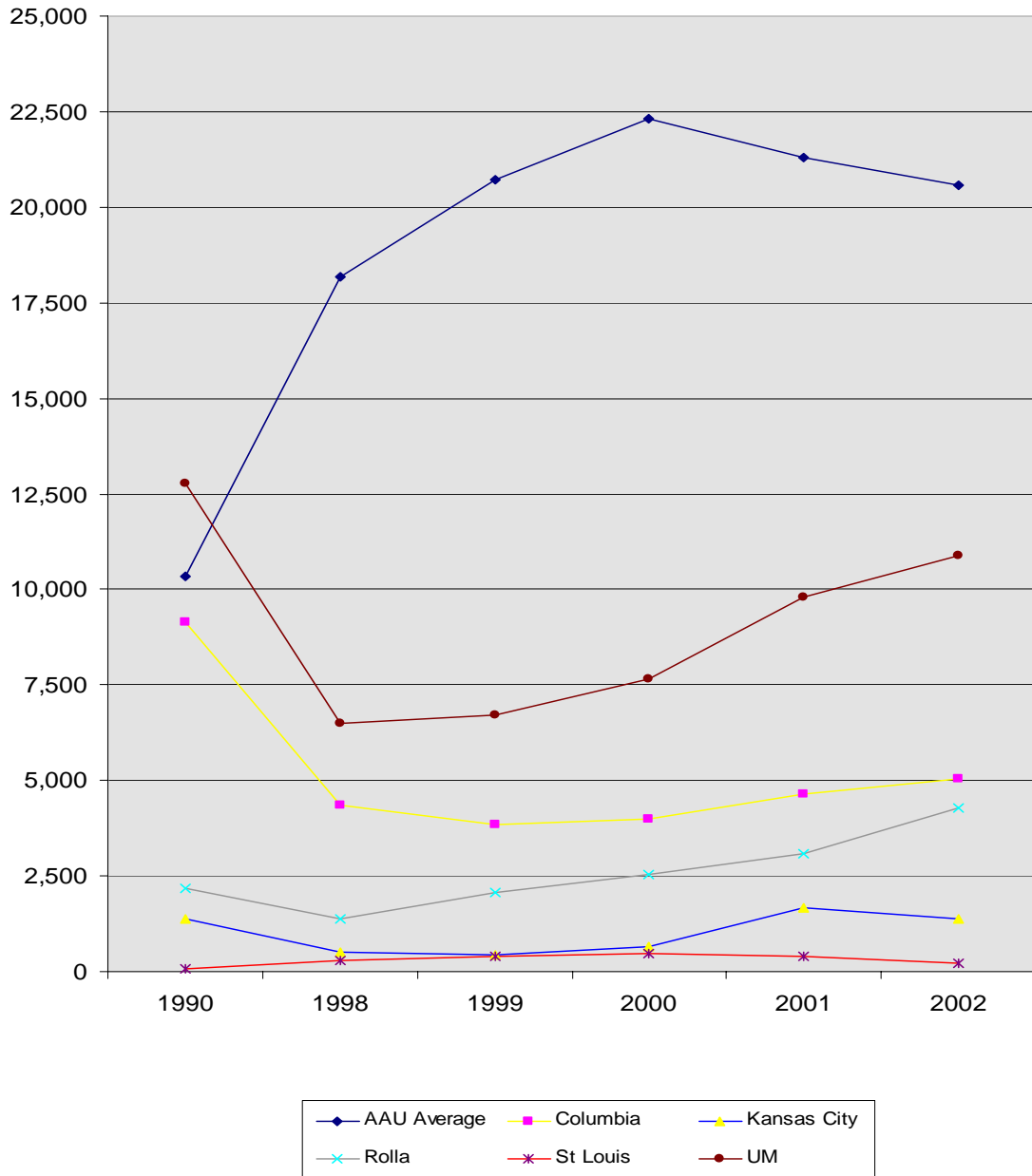
Data were unavailable for the University of Oregon.

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU in 2000 and have been added to the table above.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2002, B-38. Office of Sponsored Programs, Samuel Peterson for UM campus data.

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Figure 2. Trends in Industry-Sponsored R&D Expenditures at Public AAU Institutions 1990 to 2002
 (\$ in thousands)



Section III:
RESEARCH EXPENDITURES BY SOURCE OF FUNDS

Universities have sources, other than federal agencies, for funding research operations. These sources include funds from state & local agencies, business & industry, funds that are provided by the institution itself and other funding sources.

Table 7:
Public AAU Institutions: Sources of Research Expenditures

Table 7 shows the sources of research expenditures for the public AAU institutions. The institutions are arranged in descending order, based on the institution's percentage of research funds that are provided by the federal government.

- The University of Oregon, the University of Colorado and the University of Virginia, received over 80% of their research expenditures from the federal government, ranking them at the top among the public AAU institutions.
- The University of Missouri-Columbia receives 44% of the research funds it receives from the federal government.
- The University of Missouri funds a higher percentage of its research program (36% to 52%, depending on campus) with institutional funds than all but one other public AAU institution.

Table 7. Total R&D Expenditures at the Public AAU Institutions by Source of Funds, FY2002

Institution	Federal Gov't	State & Local	Industry	Institutional*	Other	Total (\$ in thousands)
University of Colorado	85%	1%	3%	7%	4%	399,818
University of Oregon	85%	1%	0%	8%	6%	43,723
University of Virginia	84%	1%	5%	5%	5%	182,340
U of Washington	78%	2%	7%	11%	2%	627,273
University of Pittsburgh	77%	2%	3%	10%	8%	400,200
U of NC Chapel Hill	69%	4%	2%	26%	0%	370,806
U TX at Austin	68%	6%	8%	13%	5%	320,966
University of Michigan	66%	1%	5%	20%	7%	673,724
U of Iowa	63%	3%	7%	21%	7%	288,808
U CA San Diego	61%	4%	6%	18%	11%	585,008
University of Minnesota	60%	12%	5%	15%	8%	494,265
U MD at College Park	60%	6%	2%	30%	5%	324,980
U CA Santa Barbara	59%	2%	8%	19%	12%	131,795
SUNY at Stony Brook	59%	2%	3%	29%	6%	184,045
Pennsylvania State U	58%	10%	14%	18%	0%	492,739
U CA Irvine	55%	5%	7%	19%	14%	209,469
University of Arizona	54%	2%	6%	32%	5%	390,827
SUNY at Buffalo	54%	4%	5%	23%	12%	239,735
U WI-Madison	52%	6%	3%	30%	9%	662,101
U of Illinois Urbana-Cham	50%	12%	3%	31%	4%	427,174
University of Kansas	48%	4%	3%	38%	7%	172,131
U CA Los Angeles	47%	8%	4%	27%	14%	787,598
U CA Berkeley	46%	7%	5%	28%	14%	474,746
Indiana University	44%	2%	2%	37%	15%	299,080
U of Missouri-Columbia	44%	10%	3%	40%	3%	177,011
University of Florida	43%	19%	5%	29%	4%	386,316
Michigan State University	42%	17%	4%	33%	4%	289,787
Ohio State University	41%	12%	12%	26%	9%	432,387
U CA Davis	39%	10%	5%	37%	10%	456,653
Iowa State University	38%	26%	9%	26%	2%	188,664
Purdue University	38%	16%	10%	36%		285,778
Texas A&M University	37%	25%	8%	28%	1%	436,681
Rutgers the State U NJ	35%	12%	5%	37%	12%	258,829
U of Nebraska at Lincoln	30%	3%	4%	61%	3%	171,431
Public AAU Average	55%	8%	5%	26%	7%	
Columbia	44%	10%	3%	40%	3%	177,011
Kansas City	45%	1%	6%	45%	4%	24,060
Rolla	49%	0%	13%	36%	2%	32,222
St Louis	41%	2%	2%	52%	3%	11,519

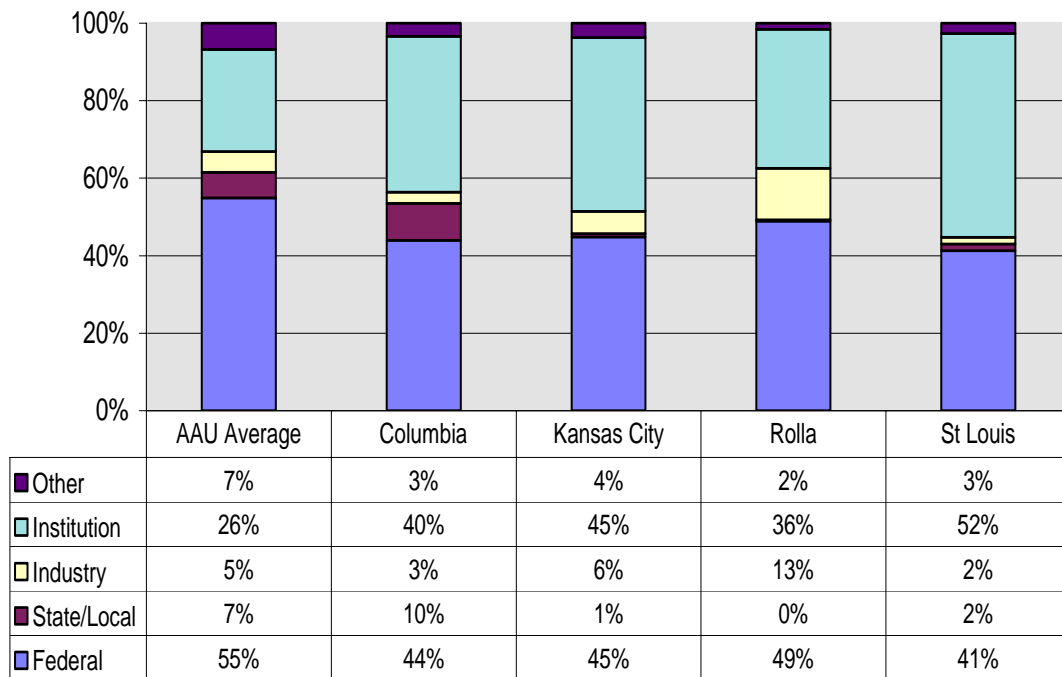
If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU in 2000 and have been added to the table above again this year for only the second time.

Institutional funds include: 1) institutionally financed funds and 2) unreimbursed costs.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2002, B-36. Office of Sponsored Programs, Samuel Peterson for UM campus data.

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Figure 3. AAU Institution expenditures by Source of Funds, FY2002



Section IV: DEFINITIONS AND TECHNICAL NOTES

The following definitions, provided by the National Science Foundation (NSF), are most relevant to the tables in this report:

Federal research expenditures: when funds for research from the federal government are actually spent they are then considered “expenditures”. For example, if the University received a two-year, two million dollar grant from NASA in FY1993 and spent \$1.5 million the first year and \$0.5 million in the second year, the federal expenditures would be \$1.5 million for FY1993 and \$0.5 million for FY1994. The reporting of expenditures, in contrast to obligations, provides a more accurate picture of an institution’s research performance because it represents funds that have been already spent as compared to funds that have been promised or are expected. Furthermore, expenditure figures are less likely to show major shifts from year to year because funds received for multi-year grants are only reported in the year that they are spent.

Industry-sponsored research expenditures: these are funds provided by profit making organizations and expended by the University for research-related purposes. These amounts are reported in the fiscal year that they are expended.

The National Science Foundation has historically reported research obligations and expenditures from a number of different perspectives. In this report, specifically, academic Science & Engineering (S&E) obligations and expenditures for Research & Development (R&D) are examined. Thus, funds received from the federal government for Plant, Facilities & Equipment; Fellowships, Traineeships, and Training Grants; General Support, and for other categories have been excluded. For brevity, "Science and Engineering" and "Research and Development" have not been repeated in the text of this document.

For further clarification, please see “IB99-4: Defining Federal Research Expenditures, Federal Research Obligations, and Federal Research Awards” at the following website:

http://www.umsystem.edu/planning/Issue_Brief/IB99-4.html.

Questions or Comments

Questions or comments should be directed to Dr. Lanette Vaughn, Associate Research Analyst, Institutional Research and Planning, 717 Lewis Hall, University of Missouri System, (573) 884-9201, vaughnla@umsystem.edu.

**APPENDIX A AND B:
RESEARCH EXPENDITURES AND CAMPUS COMPARATOR GROUPS**

In response to the University-wide Strategic Planning initiative, the following tables were added to the Research Funding Report. Appendix A examines federal research expenditures for science and engineering relative to a different group of comparator institutions for each of the University of Missouri campuses. Specifically, annual growth and market share are reported. Appendix B examines industry-sponsored research expenditures relative to the same group of comparator institutions for each campus. In these tables, annual growth and rank are reported.

Appendix A

Federal Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups, FY1998 to 2002

UM-Columbia Comparison Group	(\$ in thousands)					5 Year % +/-
	1998	1999	2000	2001	2002	
West Virginia University	24,985	26,264	28,013	29,440	49,394	97.7%
U of Missouri Columbia	45,448	53,875	65,420	68,435	77,742	71.1%
University of Kentucky	60,760	66,184	73,858	86,239	100,426	65.3%
U CA Davis	114,912	124,463	141,740	154,937	176,644	53.7%
Louisiana St U, All Camp	67,090	75,831	89,007	94,625	97,928	46.0%
University of Georgia	54,712	56,080	62,678	66,913	78,086	42.7%
Colorado State University	80,451	91,943	101,429	101,308	112,650	40.0%
Iowa State University	51,196	54,179	59,976	62,024	71,419	39.5%
U of Tennessee System	69,793	70,187	72,059	78,611	88,344	26.6%
U of Nebraska Lincoln	41,888	36,977	37,831	43,877	51,405	22.7%
VA Polytech Inst & St U	82,734	75,386	71,127	77,384	82,976	0.3%
NC State University	79,533	66,310	77,328	95,875	75,204	-5.4%
Total	773,502	797,679	880,466	959,668	1,062,218	
Market Share for UM-Columbia	5.9%	6.8%	7.4%	7.1%	7.3%	

UM-Kansas City Comparison Group*	1998	1999	2000	2001	2002	5 Year % +/-
U of Louisville	15,067	15,536	17,713	25,116	38,978	158.7%
University of IL Chicago	73,797	86,406	101,943	125,109	143,183	94.0%
U of Missouri Kansas City	6,199	7,206	7,490	8,176	10,795	74.1%
Temple U	28,793	29,734	38,213	41,643	44,577	54.8%
U of Houston	22,018	20,443	21,365	21,876	31,455	42.9%
Virginia Commonwealth U	48,167	48,175	52,137	57,315	65,028	35.0%
U of Alabama Birmingham	166,830	165,223	175,309	194,625	216,221	29.6%
U WI Milwaukee	8,936	9,409	8,425	11,089	11,461	28.3%
Wayne State University	57,646	57,610	64,320	79,448	56,360	-2.2%
Total	427,453	439,742	486,915	564,397	618,058	
Market Share for UM-Kansas City	1.5%	1.6%	1.5%	1.4%	1.7%	

*Data were unavailable for IUPUI-Indianapolis.

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Appendix A continued

UM-Rolla Comparison Group*	(\$ in thousands)					5 Year % +/-
	1998	1999	2000	2001	2002	
Kettering University	192	89	270	270	638	232.3%
SD Sch of Mines & Tech	3,221	3,300	4,127	4,417	6,950	115.8%
U of Missouri Rolla	7,934	8,731	9,804	11,929	15,749	98.5%
Colorado School of Mines	8,694	10,704	11,995	12,314	13,230	52.2%
Clarkson University	3,010	3,694	3,837	4,286	4,286	42.4%
Michigan Tech University	13,938	16,107	16,650	17,620	17,973	28.9%
Rensselaer Polytech Inst	21,774	22,803	25,555	25,894	26,490	21.7%
Worcester Polytech Inst	5,230	4,292	4,219	4,506	5,013	-4.1%
Total	63,993	69,720	76,457	81,236	90,329	
Market Share for UM-Rolla	12.4%	12.5%	12.8%	14.7%	17.4%	

* Data were unavailable for Rose-Hulman Institute of Technology.

UM-St Louis Comparison Group	1998	1999	2000	2001	2002	5 Year % +/-
Wichita State U	2,646	3,260	5,228	5,726	6,687	152.7%
The University of Memphis	5,849	6,364	11,177	11,012	14,072	140.6%
U of Akron	4,042	7,140	7,081	8,672	9,537	135.9%
Florida International U	14,243	15,757	20,296	23,940	32,057	125.1%
University of Toledo	5,366	5,682	6,312	6,701	8,996	67.6%
Wright State University	10,832	12,365	12,543	15,417	16,070	48.4%
U WI Milwaukee	8,936	9,409	8,425	11,089	11,461	28.3%
San Diego State U	19,721	19,724	22,802	23,621	25,223	27.9%
U of Missouri St Louis	3,975	4,841	4,523	4,321	4,755	19.6%
UT-Arlington	11,294	6,089	5,106	9,413	7,848	-30.5%
Total	86,904	90,631	103,493	119,912	136,706	
Market Share for UM-St Louis	4.6%	5.3%	4.4%	3.6%	3.5%	

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2002, B-33.

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Appendix B

Industry-Sponsored Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups FY1998 to FY2002

UM-Columbia Comparison Group	1998	1999	2000	2001	2002	5 Year %+/-	Rank by 2002 \$
VA Polytech Inst & St U	12,132	13,287	14,869	18,355	20,866	72.0%	2
Colorado State U	6,155	7,213	6,519	8,850	10,034	63.0%	8
West Virginia University	4,547	5,532	7,185	6,328	6,795	49.4%	11
U CA Davis	14,077	16,242	17,891	16,989	20,754	47.4%	3
University of Georgia	10,534	11,034	12,276	13,791	15,387	46.1%	6
U of Nebraska Lincoln	4,721	5,466	5,991	5,908	6,805	44.1%	10
Louisiana St U, All Campus	12,157	13,187	15,108	16,648	16,394	34.9%	4
Iowa State University	13,717	14,905	15,075	13,177	16,047	17.0%	5
U of Missouri Columbia	4,348	3,832	4,007	4,654	5,042	16.0%	12
U of Tennessee System	12,551	15,903	12,740	15,391	14,520	15.7%	7
NC State University	31,429	31,478	32,804	37,858	31,579	0.5%	1
University of Kentucky	13,668	15,109	11,213	12,933	7,810	-42.9%	9
Total	140,036	153,188	155,678	170,882	172,033	22.8%	

UM-Kansas City Comparison Group*	1998	1999	2000	2001	2002	5 Year %+/-	Rank by 2002 \$
U of Missouri Kansas City	505	427	660	1,665	1,371	171.5%	7
U of Houston	1,707	1,762	1,689	1,992	3,784	121.7%	6
Virginia Commonwealth U	8,478	8,062	7,495	8,522	9,053	6.8%	3
Wayne State University	11,207	10,660	10,932	10,860	11,163	-0.4%	1
University of IL Chicago	9,424	9,683	11,010	10,989	9,325	-1.1%	2
Temple U	8,855	1,284	*	5,400	5,030	-43.2%	5
U of Alabama Birmingham	16,842	10,181	7,752	8,443	8,368	-50.3%	4
U of Louisville	4,800	6,100	6,532	*	*		
U WI Milwaukee	554	*	*	*	*		
Total	62,372	48,159	46,070	47,871	48,094	-22.9%	

*Data were not available

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Appendix B continued

UM-Rolla Comparison Group*	1998	1999	2000	2001	2002	5 Year %+/-	Rank by 2002 \$
U of Missouri Rolla	1,361	2,079	2,543	3,008	4,282	214.6%	3
Worcester Polytech Inst	1,485	*	1,380	*	2,166	45.9%	5
Colorado School of Mines	9,877	9,292	7,870	9,466	11,001	11.4%	1
Clarkson University	1,500	1,226	1,447	1,566	1,566	4.4%	6
Michigan Tech University	3,747	3,578	3,834	4,176	2,899	-22.6%	4
Rensselaer Polytech Inst	10,974	10,084	6,581	5,928	5,142	-53.1%	2
Total	28,944	26,259	23,655	24,144	27,056	-6.5%	

* Data were not available

**No data were not available for Kettering University, SD Sch of Mines and Tech, and Rose-Hulman Institute.

UM-St Louis Comparison Group*	1998	1999	2000	2001	2002	5 Year %+/-	Rank by 2002 \$
Wright State University	1,325	1,717	2,968	3,269	3,812	187.7%	1
U of Akron	2,767	2,150	3,090	2,557	2,568	-7.2%	2
UT-Arlington	2,642	2,220	*	*	2,288	-13.4%	3
U of Missouri St Louis	273	386	461	395	205	-24.9%	4
University of Wisconsin Milwaukee	554	*	*	*	*		
The University of Memphis	784	*	*	*	*		
Total	8,345	6,473	6,519	6,221	8,873	6.3%	

*Data not available

*Data were not available for the Florida International U, San Diego State U, U of Toledo and Wichita State University.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and University, FY 2002, B-38.

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