Status on FY2001 Research Funding at the University of Missouri

D. Lanette Vaughn
Associate Research Analyst, Institutional Research & Planning
Vaughnla@umsystem.edu

June 2003

Institutional Research and Planning
Office of Planning and Budget
University of Missouri System
P&B 2003, Report 4

http://www.system.missouri.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. Please note that data from Texas A&M University and SUNY Stony Brook were added to all tables in the 2000 version of this report. In all reports before 2000, only the thirty-two public institutions classified as AAU institutions. The current report will be the second report to have information for thirty-four public AAU institutions.

Data used in this study are from fiscal year 2001. 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 to 2001 and from 1995 to 2001.

The key findings include:

Federal Research Expenditures

- On average, federal research expenditures at the University of Missouri have increased 104% since 1995 and 188% since 1990. This compares to an increase of 39% and 97%, respectively, at the public AAU institutions (Table 1).

- From 1995 to 2000, the University's market share in federal research expenditures among the public AAU institutions increased from 1.06% to 1.57%. However from 2000 to 2001, the University's market share decreased from 1.57 to 1.55. (Table 2).

- In terms of federal research expenditures, the University of Missouri ranked 28th among the 34 public AAU institutions in 2001. The University held the rank of 31st in 1990 (Table 3).

- Twenty of the thirty-four public AAU institutions in 2000 relied on one disciplinary area to provide the majority of their federal research expenditures. In each of these nineteen cases, the discipline area was life sciences (Table 4).

Industry-Sponsored Research Expenditures

- On inspection of the University of Missouri's Industry-Sponsored Research and Development Expenditures, there appears to be a large decline between 1995 and 1996. New accounting methods were responsible, in part, for this decline. With comparable accounting methods, there has been a steady increase since 1996 (Table 6).

Sources of Research Expenditures

- The University of Missouri funds a higher percentage of its research program (40%-47%, depending on campus) with institutional funds than almost every other public AAU institution (Table 7).

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 1990 to 2001 and from 1995 to 2001. 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 2001 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 since 1990 and 1995.

- On average, federal research expenditures at the University of Missouri have increased 104% over the past five years and 188% over the past ten years. This compares to an increase of 39% and 97%, respectively, at the public AAU institutions.

- Only one other institution (University of Pittsburgh) had a higher percentage gain from 1990-2001 than the University of Missouri. In the period from 1995-2001, no other institution had as high a percentage gain as the University of Missouri.

Table 1. Trends in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions 1990-2001

($ in thousands)

Institution	1990	1995	1996	1997	1998	1999	2000	2001	% increase since 1990	% increase since 1995
University of Pittsburgh	90,700	144,487	149,960	160,833	168,511	194,618	228,155	268,571	196%	86%
University of Colorado	116,394	169,666	177,517	192,201	228,342	244,686	300,394	308,643	165%	82%
University of Kansas	26,786	42,209	41,858	46,733	50,567	57,272	68,950	74,494	178%	76%
University of Florida	64,614	79,361	86,973	94,231	106,510	122,296	120,374	139,744	116%	76%
U CA Los Angeles	164,442	201,773	236,635	238,919	233,702	251,999	274,162	312,858	90%	55%
U MD at College Park	66,410	94,071	99,688	102,928	129,198	145,081	136,605	145,515	119%	55%
U of Iowa	79,046	103,115	105,646	108,534	115,312	122,638	140,764	155,249	96%	51%
U of Washington	203,353	291,284	312,695	320,784	336,748	368,112	389,622	435,103	114%	49%
U CA Irvine	52,492	69,655	72,994	71,472	65,902	75,505	88,274	101,735	94%	46%
Michigan State University	58,221	77,499	77,243	82,977	81,146	89,835	97,112	112,359	93%	45%
University of Virginia	58,801	85,244	75,256	82,488	93,328	108,495	119,243	122,868	109%	44%
University of Michigan	180,456	275,956	281,062	296,028	311,450	334,226	364,033	396,117	120%	44%
U of NC Chapel Hill	92,468	156,626	157,034	153,985	171,505	182,935	194,794	221,615	140%	41%
U of IL Urbana-Champaign	117,168	139,078	145,514	156,366	168,871	185,767	193,490	195,316	67%	40%
Indiana University	57,155	86,041	90,881	96,087	95,840	102,262	107,577	116,781	104%	36%
University of Minnesota	143,810	194,819	198,927	200,149	204,741	207,761	229,958	264,289	84%	36%
U TX at Austin	109,593	143,939	147,808	151,954	165,082	164,913	178,889	195,184	78%	36%
University of Oregon	20,151	23,789	26,411	26,020	27,041	27,336	30,793	32,232	60%	35%
U WI-Madison	178,862	229,381	233,174	233,760	240,513	249,961	278,629	304,009	70%	33%
U CA Berkeley	131,717	157,826	168,171	186,349	171,135	191,025	208,338	208,080	58%	32%
Ohio State University	78,878	122,660	118,811	122,582	124,177	135,216	132,219	161,092	104%	31%
Pennsylvania State U	136,656	187,481	190,688	185,206	186,274	199,105	226,074	245,951	80%	31%
SUNY at Buffalo	66,876	75,713	87,813	78,092	76,037	85,490	96,410	96,595	44%	28%
U CA Davis	77,424	122,645	130,188	123,673	114,912	124,463	141,740	154,937	100%	26%
SUNY at Stony Brook	55,911	76,505	79,570	86,568	91,531	93,937	96,641	93,265	67%	22%
U CA Santa Barbara	47,873	63,443	73,400	74,149	68,408	74,026	80,754	76,828	60%	21%
U CA San Diego	182,555	284,445	291,917	274,860	262,303	292,007	326,037	343,276	88%	21%
U of Nebraska at Lincoln	22,686	36,897	32,352	41,269	41,888	36,977	37,831	43,877	93%	19%
University of Arizona	92,920	168,791	154,004	152,221	161,999	178,126	187,161	199,484	115%	18%
Texas A&M University	93,001	136,734	148,675	145,066	144,938	149,151	149,639	149,382	61%	9%
Rutgers the State U NJ	40,977	72,567	67,588	68,225	69,829	75,664	79,711	77,156	88%	6%
Iowa State University	34,043	58,766	54,904	52,938	51,196	54,179	59,976	62,024	82%	6%
Purdue University	64,464	93,256	91,632	91,969	92,844	95,708	92,010	98,151	52%	5%
Public AAU Institution Average	91,118	129,264	133,545	136,352	140,963	152,145	165,344	179,175	97%	39%
University of Missouri:*										
Columbia	24,422	32,420	38,938	43,335	45,448	53,875	65,420	68,435	180%	111%
Kansas City	2,767	4,506	5,087	5,380	6,199	7,206	7,490	8,176	195%	81%
Rolla	3,863	5,834	7,542	8,080	7,934	8,731	9,804	11,929	209%	104%
St Louis	1,167	2,840	3,349	3,650	3,975	4,841	4,523	4,321	270%	52%
University Total	32,219	45,600	54,916	60,445	63,556	74,653	87,237	92,861	188%	104%

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 2001, B-33, http://www.nsf.gov/sbe/srs/nsf03316/sectb.htm#rd2

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

IR&P/lv 04/03

Figure 1. Trends in Federal Expenditures at Public AAU Institutions

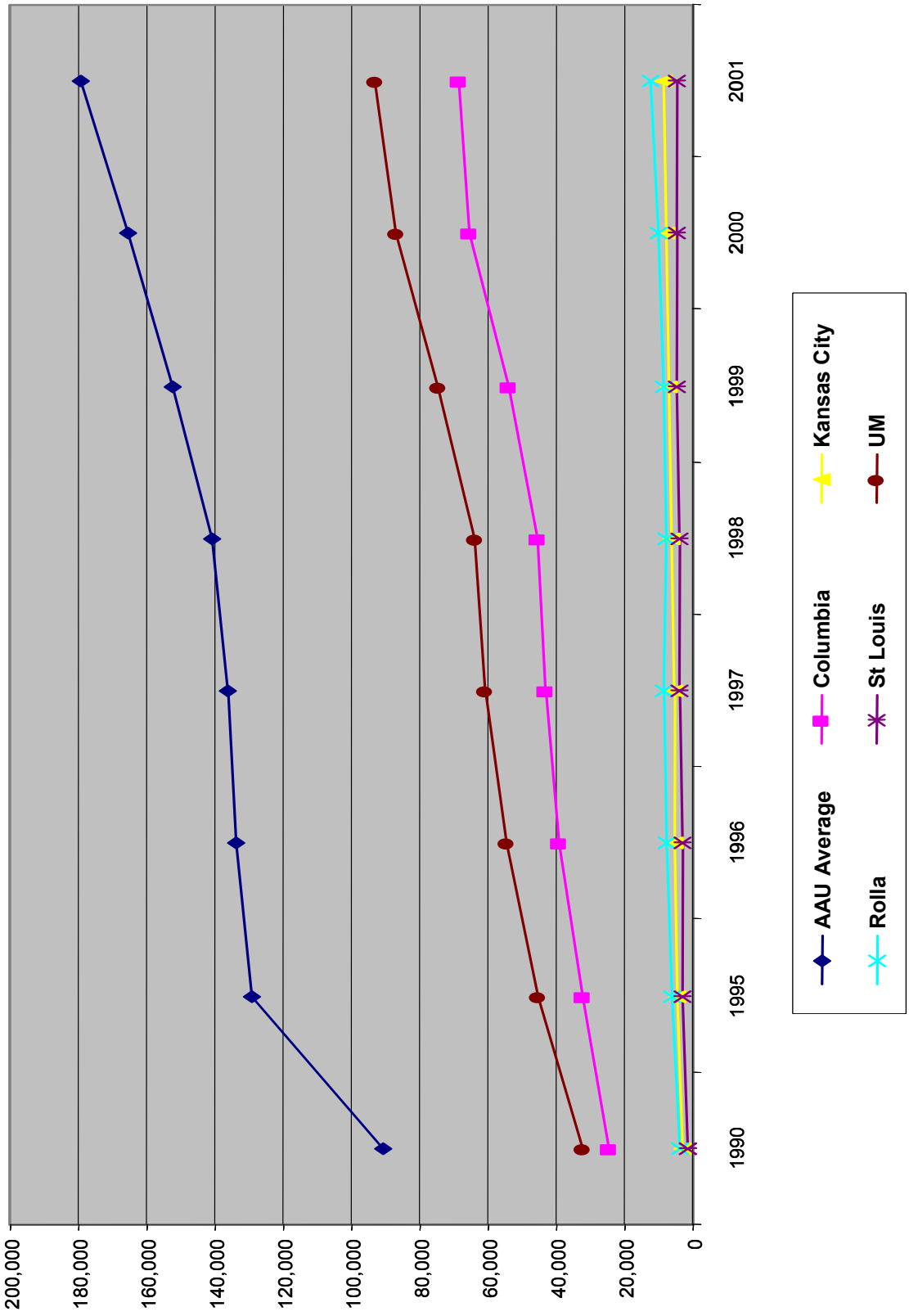


Table 2:
Public AAU Institutions: Market Share Increases and Decreases in Federal Research Expenditures

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, and 2001.

- 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.

Table 2. Market Share Gain or Loss in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions, 1995 to 2001

($ in thousands)

Institution	1995 $	1995 Market Share	2000 $	2000 Market Share	2001 $	2001 Market Share	MS +/- since 1995
University of Colorado	169,666	3.94	300,394	5.42	308,643	5.14	1.20
University of Pittsburgh	144,487	3.35	228,155	4.12	268,571	4.47	1.12
U CA Los Angeles	201,773	4.68	274,162	4.95	312,858	5.21	0.53
U of Washington	291,284	6.76	389,622	7.03	435,103	7.24	0.49
U of Missouri-Total	45,600	1.06	87,237	1.57	92,861	1.55	0.49
University of Florida	79,361	1.84	120,374	2.17	139,744	2.33	0.49
University of Kansas	42,209	0.98	68,950	1.24	74,494	1.24	0.26
U MD at College Park	94,071	2.18	136,605	2.46	145,515	2.42	0.24
University of Michigan	275,956	6.40	364,033	6.57	396,117	6.60	0.20
U of Iowa	103,115	2.39	140,764	2.54	155,249	2.59	0.19
U CA Irvine	69,655	1.62	88,274	1.59	101,735	1.69	0.08
Michigan State University	77,499	1.80	97,112	1.75	112,359	1.87	0.07
University of Virginia	85,244	1.98	119,243	2.15	122,868	2.05	0.07
U of NC Chapel Hill	156,626	3.63	194,794	3.51	221,615	3.69	0.06
U of IL Urbana-Champaign	139,078	3.23	193,490	3.49	195,316	3.25	0.03
University of Oregon	23,789	0.55	30,793	0.56	32,232	0.54	-0.02
Indiana University	86,041	2.00	107,577	1.94	116,781	1.94	-0.05
U TX at Austin	143,939	3.34	178,889	3.23	195,184	3.25	-0.09
University of Minnesota	194,819	4.52	229,958	4.15	264,289	4.40	-0.12
U of Nebraska at Lincoln	36,897	0.86	37,831	0.68	43,877	0.73	-0.13
SUNY at Buffalo	75,713	1.76	96,410	1.74	96,595	1.61	-0.15
Ohio State University	122,660	2.85	132,219	2.39	161,092	2.68	-0.16
U CA Santa Barbara	63,443	1.47	80,754	1.46	76,828	1.28	-0.19
U CA Berkeley	157,826	3.66	208,338	3.76	208,080	3.46	-0.20
SUNY at Stony Brook	76,505	1.77	96,641	1.74	93,265	1.55	-0.22
Pennsylvania State U	187,481	4.35	226,074	4.08	245,951	4.10	-0.25
U WI-Madison	229,381	5.32	278,629	5.03	304,009	5.06	-0.26
U CA Davis	122,645	2.84	141,740	2.56	154,937	2.58	-0.26
Iowa State University	58,766	1.36	59,976	1.08	62,024	1.03	-0.33
Rutgers the State U NJ	72,567	1.68	79,711	1.44	77,156	1.28	-0.40
Purdue University	93,256	2.16	92,010	1.66	98,151	1.63	-0.53
University of Arizona	168,791	3.92	187,161	3.38	199,484	3.32	-0.59
Texas A&M University	136,734	3.17	149,639	2.70	149,382	2.49	-0.68
U CA San Diego	284,445	6.60	326,037	5.88	343,276	5.72	-0.88
	4,311,322		5,543,596		6,005,641	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 2001, B-33, http://www.nsf.gov/sbe/srs/nsf03316/sectb.htm#rd2

IR&P/lv 04/03

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 2001.

- The University of Missouri ranked 28th among the 34 public AAU institutions in 2001. 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 2001

($ in thousands)

1990			2001		
Rank	**Institution**	**$**	**Rank**	**Institution**	**$**
1	U of Washington	203,353	1	U of Washington	435,103
2	U of California-San Diego	182,555	2	University of Michigan	396,117
3	U of Michigan	180,456	3	U CA San Diego	343,276
4	U of Wisconsin-Madison	178,862	4	U CA Los Angeles	312,858
5	U of California-Los Angeles	164,442	5	University of Colorado	308,643
6	U of Minnesota	143,810	6	U WI-Madison	304,009
7	Pennsylvania State U	136,656	7	University of Pittsburgh	268,571
8	U of California-Berkeley	131,717	8	University of Minnesota	264,289
9	U of Illinois-Urbana	117,168	9	Pennsylvania State U	245,951
10	U of Colorado	116,394	10	U of NC Chapel Hill	221,615
11	U of Texas-Austin	109,593	11	U CA Berkeley	208,080
12	Texas A&M University	93,001	12	University of Arizona	199,484
13	U of Arizona	92,920	13	U of IL Urbana-Champaign	195,316
14	U of N Carolina-Chapel Hill	92,468	14	U TX at Austin	195,184
15	U of Pittsburgh	90,700	15	Ohio State University	161,092
16	U of Iowa	79,046	16	U of Iowa	155,249
17	Ohio State U	78,878	17	U CA Davis	154,937
18	U of California-Davis	77,424	18	Texas A&M University	149,382
19	SUNY-Buffalo	66,876	19	U MD at College Park	145,515
20	U of Maryland-College Park	66,410	20	University of Florida	139,744
21	U of Florida	64,614	21	University of Virginia	122,868
22	Purdue U	64,464	22	Indiana University	116,781
23	U of Virginia	58,801	23	Michigan State University	112,359
24	Michigan State U	58,221	24	U CA Irvine	101,735
25	Indiana U	57,155	25	Purdue University	98,151
26	SUNY at Stony Brook	55,911	26	SUNY at Buffalo	96,595
27	U of California-Irvine	52,492	27	SUNY at Stony Brook	93,265
28	U of California-Santa Barbara	47,873		University of Missouri-Total	92,861
29	Rutgers, the State U of NJ	40,977	28	Rutgers the State U NJ	77,156
30	Iowa State U	34,043	29	U CA Santa Barbara	76,828
	University Of Missouri-Total	32,219	30	University of Kansas	74,494
31	U of Kansas	26,786	31	U of Missouri Columbia	68,435
32	U of Missouri-Columbia	24,422	32	Iowa State University	62,024
33	U of Nebraska-Lincoln	22,686	33	U of Nebraska at Lincoln	43,877
34	U of Oregon	20,151	34	University of Oregon	32,232

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 2001, B-33, http://www.nsf.gov/sbe/srs/nsf03316/sectb.htm#rd2

IR&P/lv 04/03

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 2001 the majority of federal research funds expended by the public AAU institutions were in the life sciences (54%) followed by engineering (15%), the physical sciences (12%) and environmental sciences (7%).

- Twenty of the thirty-four public AAU institutions in 2001 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 72% and 82% of their federal expenditures from life sciences, respectively, Rolla garnered 75% of its federal funds in engineering. St Louis received 25% in the physical sciences and 40% of its federal funding in life sciences.

Table 4. Federal R&D Expenditures at the Public AAU Institutions by Science and Engineering Field, FY2001

Institution	Engi-neering	Physical	Environ-mental	Math & computer	Life sciences	Psy-chology	Social sciences	Other sciences	Total
	Row Percentages								(in thousands)
Indiana University	1	15	1	2	71	5	5	0	116,781
Iowa State University	27	9	4	5	41	0	12	1	62,024
Michigan State University	6	26	1	3	53	3	9	0	112,359
Ohio State University	16	9	3	2	59	3	9	0	161,092
Pennsylvania State U	45	15	4	2	28	3	3	1	245,951
Purdue University	31	13	3	5	42	2	4	0	98,151
Rutgers the State U NJ	16	17	11	6	40	4	5	0	77,156
SUNY at Buffalo	18	4	1	3	70	2	2	1	96,595
SUNY at Stony Brook	8	18	11	5	54	3	1	0	93,265
Texas A&M University	21	8	37	4	27	1	1	0	149,382
U CA Berkeley	26	25	2	3	40	2	3	0	208,080
U CA Davis	9	9	8	1	69	1	2	1	154,937
U CA Irvine	7	12	3	5	67	3	3	1	101,735
U CA Los Angeles	9	10	3	3	71	2	1	0	312,858
U CA San Diego	7	7	21	15	48	1	1	0	343,276
U CA Santa Barbara	31	25	17	10	4	5	7	1	76,828
U of IL Urbana-Champaign	31	16	6	20	20	3	2	2	195,316
U of Iowa	6	8	1	1	81	2	1	0	155,249
U MD at College Park	27	23	5	9	11	2	23	0	145,515
U of NC Chapel Hill	0	6	3	2	78	2	8	0	221,615
U of Nebraska at Lincoln	13	14	9	3	48	8	4	2	43,877
U of Washington	7	5	15	2	69	2	0	0	435,103
U WI-Madison	17	11	7	3	52	5	5	0	304,009
U TX at Austin	37	22	5	16	14	2	3	0	195,184
University of Arizona	16	20	3	3	53	1	4	0	199,484
University of Colorado	8	21	15	2	48	3	2	0	308,643
University of Florida	18	10	2	4	61	3	1	0	139,744
University of Kansas	11	4	3	1	74	2	3	4	74,494
University of Michigan	23	5	1	2	54	1	13	0	396,117
University of Minnesota	10	10	2	4	71	2	1	0	264,289
University of Oregon	0	21	5	8	50	13	4	0	32,232
University of Pittsburgh	3	4	0	1	87	2	2	0	268,571
University of Virginia	16	8	4	3	67	2	0	0	122,868
Public AAU Distribution	15	12	7	5	54	2	4	0	
University of Missouri:									
Columbia	12	3	1	1	72	4	6	0	68,435
Rolla	75	22	2	0	0	0	0	0	11,929
Kansas City	0	8	0	5	82	3	1	0	8,176
St Louis	0	25	0	8	40	17	11	0	4,321
University Total	19	7	1	2	62	4	5	0	92,861

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 2001, B-43, http://www.nsf.gov/sbe/srs/nsf03316/tables/tabb43.xls

IR&P/lv 04/03

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 (2.5%) and social sciences (2.0%)

- Market share leaders in each discipline area were: Pennsylvania State University in engineering (11.9%), the University of Colorado in the physical sciences (9.1%), the University of California, San Diego in both environmental sciences (17.1%), and math and computer science (17.9%), the University of Washington in life sciences (9.2%), University Wisconsin-Madison in psychology (11.4%), University of Michigan in the social sciences (21.3%) and University of Illinois Urbana-Champaign in other sciences (18.5%).

Table 5. Market Share in Federal R&D Expenditures by Discipline Area Among the Public AAU Institutions, FY 2001

Institution	Engi-neering	Physical	Environ-mental	Math & computer	Life sciences	Psy-chology	Social sciences	Other sciences	Total
									($ in thousands)
U of Washington	3.3	2.9	15.9	3.3	9.2	5.5	0.6	0.0	435,103
University of Michigan	9.8	2.9	0.8	3.2	6.5	3.9	21.3	0.0	396,117
U CA San Diego	2.6	3.6	17.1	17.9	5.0	3.4	1.5	0.0	343,276
U CA Los Angeles	3.0	4.4	2.1	3.5	6.9	5.0	1.8	0.1	312,858
University of Colorado	2.6	9.1	11.3	2.4	4.6	5.5	2.9	8.5	308,643
U WI-Madison	5.4	4.6	5.2	3.2	4.9	11.4	6.0	0.0	304,009
University of Pittsburgh	0.8	1.6	0.1	1.1	7.2	3.1	2.2	6.7	268,571
University of Minnesota	2.7	3.7	1.6	3.6	5.8	3.6	1.2	0.0	264,289
Pennsylvania State U	11.9	5.2	2.6	1.9	2.1	4.7	2.5	10.0	245,951
U of NC Chapel Hill	0.0	1.9	1.8	2.0	5.3	2.6	7.2	0.0	221,615
U CA Berkeley	5.8	7.4	0.8	1.9	2.5	2.9	2.3	0.1	208,080
University of Arizona	3.4	5.7	1.6	2.4	3.2	1.2	3.0	0.0	199,484
U of IL Urbana-Champaign	6.5	4.3	2.8	14.1	1.2	3.9	1.7	18.5	195,316
U TX at Austin	7.7	6.0	2.5	11.4	0.9	2.6	2.7	2.4	195,184
Ohio State University	2.8	2.0	1.3	1.0	2.9	2.8	5.8	2.0	161,092
U of Iowa	1.0	1.8	0.2	0.4	3.9	2.3	0.7	0.1	155,249
U CA Davis	1.6	2.0	3.1	0.7	3.3	0.7	1.0	6.3	154,937
Texas A&M University	3.4	1.6	13.4	2.4	1.3	1.2	0.5	0.6	149,382
U MD at College Park	4.3	4.6	1.7	4.8	0.5	1.8	13.3	0.0	145,515
University of Florida	2.8	2.0	0.7	1.9	2.6	2.9	0.7	0.0	139,744
University of Virginia	2.1	1.4	1.1	1.3	2.5	1.9	0.2	0.0	122,868
Indiana University	0.1	2.4	0.3	0.8	2.5	4.4	2.3	3.2	116,781
Michigan State University	0.7	4.1	0.2	1.0	1.8	2.6	4.0	0.6	112,359
U CA Irvine	0.8	1.7	0.6	1.8	2.1	2.1	1.1	4.0	101,735
Purdue University	3.2	1.8	0.6	1.7	1.3	1.5	1.4	1.0	98,151
SUNY at Buffalo	1.8	0.6	0.2	1.0	2.1	1.0	0.9	4.7	96,595
SUNY at Stony Brook	0.8	2.4	2.5	1.7	1.6	1.8	0.3	0.0	93,265
University of Missouri-Total	1.9	0.9	0.2	0.6	1.8	2.5	2.0	0.0	92,881
Rutgers the State U NJ	1.3	1.8	2.1	1.8	0.9	2.1	1.7	0.5	77,156
U CA Santa Barbara	2.5	2.7	3.2	2.7	0.1	2.9	2.2	2.9	76,828
University of Kansas	0.8	0.4	0.6	0.2	1.7	0.8	0.8	18.3	74,494
Iowa State University	1.8	0.8	0.6	1.1	0.8	0.1	3.0	3.6	62,024
U of Nebraska at Lincoln	0.6	0.8	0.9	0.4	0.6	2.5	0.6	5.6	43,877
University of Oregon	0.0	1.0	0.4	0.9	0.5	2.8	0.5	0.0	32,232
Public AAU Distribution	882,287	690,823	412,630	257,368	2,940,348	126,891	215,659	17,586	6,005,661

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 2001, B-43, http://www.nsf.gov/sbe/srs/nsf03316/tables/tabb43.xls

IR&P/lv 04/03

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 2001 and the gain or loss from 1995 to 2001. The institutions are arranged in descending order based on gain or loss since 1995. Please note that a definition of *industry-sponsored research expenditures* is provided in Section III: Definitions and Technical Notes.

- Ohio State University, University of Texas at Austin, and University of Florida, and 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 ($67.7 million) and Ohio State University ($55 million)

- The University of Missouri secured $7.7 million in industry-sponsored research expenditures in 2000 and $9.8 million in 2001.

Table 6. Industry-Sponsored R&D Expenditures at Public AAU Institutions 1990 to 2001

($ in thousands)

Institution	1990	1995	1996	1997	1998	1999	2000	2001	$ Gain/Loss since 1995
Ohio State University	14,744	21,827	30,870	36,685	40,401	52,034	57,075	54,736	32,909
U TX Austin	3,507	3,257	15,029	29,887	31,326	39,729	24,740	30,310	27,053
University of Florida	12,237	10,611	23,532	25,217	21,393	28,183	34,879	36,417	25,806
U CA San Diego	9,135	11,363	15,130	19,266	26,814	31,356	34,541	36,845	25,482
U CA Los Angeles	8,310	14,892	15,788	19,586	27,817	34,404	33,427	32,539	17,647
Pennsylvania State U	34,806	50,225	52,771	56,666	63,319	65,698	64,393	67,658	17,433
U CA Berkeley	10,892	13,842	15,128	17,125	20,483	21,928	27,851	26,791	12,949
U of Iowa	6,827	11,359	14,862	15,712	17,262	20,778	17,262	21,394	10,035
U CA Davis	7,461	8,053	9,387	9,362	14,077	16,242	17,891	16,989	8,936
University of Arizona	10,246	15,300	13,106	14,964	16,392	16,660	22,412	22,934	7,634
U CA Irvine	3,115	9,139	10,391	10,445	15,712	16,539	18,615	15,803	6,664
University of Pittsburgh	6,481	8,208	7,880	9,753	10,436	12,990	14,676	14,817	6,609
U of Washington	22,215	36,892	36,180	37,744	38,370	51,319	57,405	43,312	6,420
University of Michigan	27,128	28,987	34,975	31,411	33,029	34,432	35,515	34,439	5,452
Iowa State University	5,525	8,017	7,407	8,499	13,717	14,905	15,075	13,177	5,160
Purdue University	11,632	25,147	25,720	26,090	26,988	28,856	29,997	29,765	4,618
U of NC Chapel Hill	2,179	2,403	2,592	3,311	4,860	5,886	6,835	6,971	4,568
U WI Madison	12,123	12,948	13,871	14,832	14,371	14,172	16,127	17,237	4,289
Texas A&M University	26,197	31,452	26,947	31,816	33,674	34,722	31,084	35,110	3,658
U CA Santa Barbara	2,655	2,576	2,988	2,876	3,666	4,742	5,499	6,001	3,425
Rutgers the State U NJ	6,754	7,797	7,079	8,848	9,038	9,833	8,843	10,965	3,168
Michigan State University	4,557	7,853	6,818	6,973	7,250	7,647	11,230	10,953	3,100
University of Minnesota	18,086	23,427	23,726	24,196	24,094	23,933	26,392	26,454	3,027
U of Nebraska Lincoln	3,394	3,145	3,465	4,651	4,721	5,466	5,991	5,908	2,763
University of Colorado	7,426	7,607	8,902	9,403	9,963	9,867	9,291	9,002	1,395
SUNY at Stony Brook	2,426	5,850	5,848	7,119	6,908	7,416	7,567	7,026	1,176
Indiana University	2,316	5,815	5,357	4,242	6,333	4,820	5,384	6,375	560
U of IL Urbana-Champaign	20,762	11,832	12,365	11,761	13,917	12,864	12,693	10,992	-840
SUNY at Buffalo	2,118	13,390	13,186	14,480	3,021	5,485	5,590	11,598	-1,792
University of Kansas	4,473	8,149	9,356	8,201	8,281	14,393	15,712	4,155	-3,994
University of Virginia	6,406	15,442	4,552	7,627	12,400	12,989	17,266	7,733	-7,709
U MD at College Park	14,229	25,431	24,044	5,009	2,127	3,053		7,315	-18,116
Public AAU Average	10,324	14,445	15,602	16,680	18,193	20,729	22,299	21,304	
University of Missouri:									
Columbia	9,130	10,114	3,158	3,777	4,348	3,832	4,007	4,654	-5,460
Kansas City	1,383	636	154	348	505	427	660	1,665	1,029
Rolla	2,186	1,316	2,364	1,575	1,361	2,079	2,543	3,088	1,772
St Louis	69	409	191	274	273	386	461	395	-14
University Total	12,768	12,475	5,867	5,974	6,487	6,724	7,671	9,802	-2,673

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 2000, B-38, http://www.nsf.gov/sbe/srs/nsf03316/tables/tabb38.xls

IR&P/lv 04/03

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 39% of the research funds it receives from the federal government.

- The University of Missouri funds a higher percentage of its research program (40% to 47%, 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, FY2001

Institution	Federal Gov't	State & Local	Industr	Institu-tional*	Other	Total ($ in thousands)
University of Oregon	87%	1%	0%	8%	4%	36,881
University of Colorado	84%	1%	2%	8%	4%	365,472
University of Virginia	82%	0%	5%	8%	5%	149,547
University of Pittsburgh	77%	1%	4%	9%	8%	348,792
U of Washington	74%	2%	7%	15%	2%	589,626
U of NC Chapel Hill	73%	5%	2%	19%	0%	303,576
U TX at Austin	66%	7%	10%	12%	5%	295,104
U CA Santa Barbara	66%	3%	5%	17%	10%	116,372
University of Michigan	66%	1%	6%	20%	7%	600,523
U CA San Diego	62%	4%	7%	18%	10%	556,533
U of Iowa	61%	3%	8%	21%	7%	255,348
University of Minnesota	57%	13%	6%	17%	7%	462,011
U CA Irvine	57%	5%	9%	17%	13%	179,866
SUNY at Stony Brook	55%	2%	4%	32%	6%	168,487
U MD at College Park	54%	8%	3%	30%	5%	267,383
University of Arizona	54%	2%	6%	32%	5%	367,128
Pennsylvania State U	54%	5%	15%	25%	2%	458,066
SUNY at Buffalo	52%	3%	6%	27%	12%	186,829
U WI-Madison	50%	6%	3%	31%	10%	604,143
U of Illinois Urbana-Cham	50%	12%	3%	31%	4%	390,863
University of Kansas	48%	5%	3%	33%	12%	156,467
U CA Berkeley	47%	7%	6%	29%	12%	446,273
U CA Los Angeles	45%	9%	5%	27%	14%	693,801
Indiana University	45%	2%	2%	39%	11%	259,899
Michigan State University	42%	17%	4%	33%	3%	265,946
Ohio State University	41%	14%	14%	22%	9%	390,652
U of Missouri Columbia	39%	9%	3%	45%	4%	174,782
University of Florida	39%	21%	10%	28%	3%	359,312
Purdue University	39%	14%	12%	35%		254,917
Texas A&M University	37%	25%	9%	29%	1%	407,041
U CA Davis	36%	12%	4%	40%	9%	432,396
Iowa State University	35%	29%	7%	27%	2%	179,196
Rutgers the State U NJ	33%	12%	5%	38%	13%	236,793
U of Nebraska at Lincoln	28%	2%	4%	64%	2%	157,520
Public AAU Average	54%	8%	6%	26%	7%	
Columbia	39%	9%	3%	45%	4%	174,782
Kansas City	44%	2%	9%	44%	2%	18,795
Rolla	41%	2%	11%	40%	6%	28,799
St Louis	43%	2%	4%	47%	4%	10,084

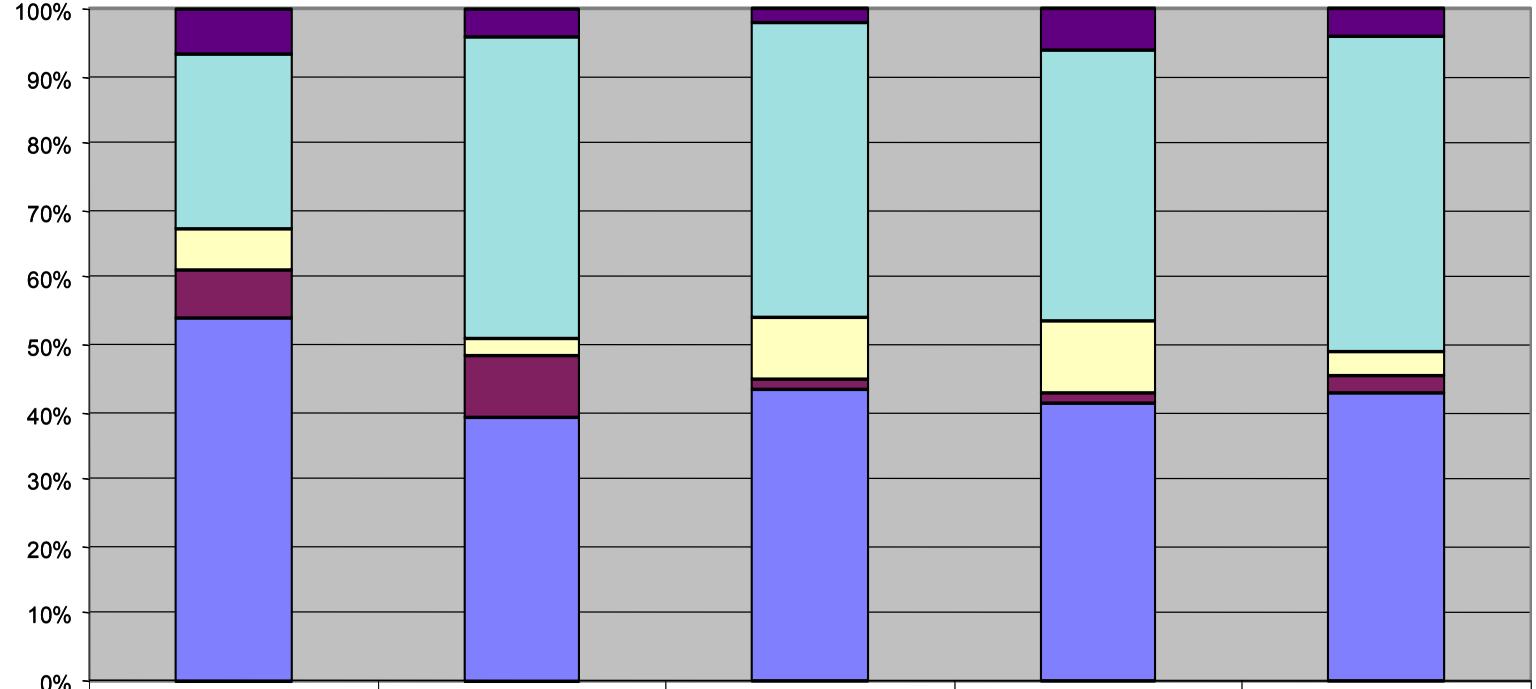
If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU in 2000 and have been added to the table above again this year for only the second time.

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 2001, B-36, http://www.nsf.gov/sbe/srs/nsf03316/tables/tabb36.xls

IR&P/lv 04/03

Figure 2. AAU Institution Expenditures by Source of Funds, FY2001



	AAU Average	Columbia	Kansas City	Rolla	St Louis
Other	7%	4%	2%	6%	4%
Institution	26%	45%	44%	40%	47%
Industry	6%	3%	9%	11%	4%
State/Local	8%	9%	2%	2%	2%
Federal	54%	39%	44%	41%	43%

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.system.missouri.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, FY1997 to 2001

($ in thousands)

UM-Columbia Comparison Group	1997	1998	1999	2000	2001	5 Year '% +/-
U of Missouri Columbia	**43,335**	**45,448**	**53,875**	**65,420**	**68,435**	**57.9%**
Louisiana St U, All Camp	65,257	67,090	75,831	89,007	94,625	45.0%
University of Kentucky	62,128	60,760	66,184	73,858	86,239	38.8%
NC State University	69,473	79,533	66,310	77,328	95,875	38.0%
Colorado State University	79,393	80,451	91,943	101,429	101,308	27.6%
U CA Davis	123,673	114,912	124,463	141,740	154,937	25.3%
University of Georgia	54,364	54,712	56,080	62,678	66,913	23.1%
Iowa State University	52,938	51,196	54,179	59,976	62,024	17.2%
U of Nebraska Lincoln	41,269	41,888	36,977	37,831	43,877	6.3%
U of Tennessee System	74,049	69,793	70,187	72,059	78,611	6.2%
West Virginia University	29,443	24,985	26,264	28,013	29,440	0.0%
VA Polytech Inst & St U	87,657	82,734	75,386	71,127	77,384	-11.7%
Total	782,979	773,502	797,679	880,466	959,668	
Market Share for UM-Columbia	5.5%	5.9%	6.8%	7.4%	7.1%	

UM-Kansas City Comparison Group*	1997	1998	1999	2000	2001	5 Year '% +/-
U of Louisville	13,521	15,067	15,536	17,713	25,116	85.8%
University of IL Chicago	70,739	73,797	86,406	101,943	125,109	76.9%
Temple U	26,374	28,793	29,734	38,213	41,643	57.9%
U of Missouri Kansas City	**5,380**	**6,199**	**7,206**	**7,490**	**8,176**	**52.0%**
Wayne State University	53,707	57,646	57,610	64,320	79,448	47.9%
U WI Milwaukee	8,156	8,936	9,409	8,425	11,089	36.0%
U of Alabama Birmingham	150,501	166,830	165,223	175,309	194,625	29.3%
Virginia Commonwealth U	44,982	48,167	48,175	52,137	57,315	27.4%
U of Houston	21,695	22,018	20,443	21,365	21,876	0.8%
Total	395,055	427,453	439,742	486,915	564,397	
Market Share for UM-Kansas City	1.4%	1.5%	1.6%	1.5%	1.4%	

*Data were unavailable for IUPU-Indianapolis.

Continued on next page

Appendix A continued

	($ in thousands)					
UM-Rolla Comparison Group*	**1997**	**1998**	**1999**	**2000**	**2001**	**5 Year '% +/-**
Kettering University	176	192	89	270	270	53.4%
SD Sch of Mines & Tech	2,990	3,221	3,300	4,127	4,417	47.7%
U of Missouri Rolla	**8,080**	**7,934**	**8,731**	**9,804**	**11,929**	**47.6%**
Michigan Tech University	12,941	13,938	16,107	16,650	17,620	36.2%
Colorado School of Mines	9,330	8,694	10,704	11,995	12,314	32.0%
Clarkson University	3,368	3,010	3,694	3,837	4,286	27.3%
Rensselaer Polytech Inst	22,785	21,774	22,803	25,555	25,894	13.6%
Worcester Polytech Inst	7,315	5,230	4,292	4,219	4,506	-38.4%
Total	66,985	63,993	69,720	76,457	81,236	
Market Share for UM-Rolla	12.1%	12.4%	12.5%	12.8%	14.7%	

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

UM-St Louis Comparison Group	**1997**	**1998**	**1999**	**2000**	**2001**	**5 Year '% +/-**
University of Toledo	2,937	5,366	5,682	6,312	6,701	128.2%
Witchita State U	2,602	2,646	3,260	5,228	5,726	120.1%
The University of Memphis	5,413	5,849	6,364	11,177	11,012	103.4%
Florida International U	13,828	14,243	15,757	20,296	23,940	73.1%
U of Akron	5,146	4,042	7,140	7,081	8,672	68.5%
Wright State University	10,001	10,832	12,365	12,543	15,417	54.2%
U WI Milwaukee	8,156	8,936	9,409	8,425	11,089	36.0%
U of Missouri St Louis	**3,650**	**3,975**	**4,841**	**4,523**	**4,321**	**18.4%**
San Diego State U	20,237	19,721	19,724	22,802	23,621	16.7%
UT-Arlington	26,829	11,294	6,089	5,106	9,413	-64.9%
Total	98,799	86,904	90,631	103,493	119,912	
Market Share for UM-St Louis	3.7%	4.6%	5.3%	4.4%	3.6%	

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Colleges and Universities, FY 2001, B-33, http://www.nsf.gov/sbe/srs/nsf03316/sectb.htm#rd2

IR&P/lv 04/03

Appendix B

Industry-Sponsored Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups FY1997 to FY2001

($ in thousands)

UM-Columbia Comparison Group	1997	1998	1999	2000	2001	5 Year '%+/-	Rank by 2001 $
U CA Davis	9,362	14,077	16,242	17,891	16,989	81.5%	3
West Virginia University	3,719	4,547	5,532	7,185	6,328	70.2%	9
VA Polytech Inst & St U	11,385	12,132	13,287	14,869	18,355	61.2%	2
Iowa State University	8,499	13,717	14,905	15,075	13,177	55.0%	7
Colorado State U	5,712	6,155	7,213	6,519	8,850	54.9%	9
NC State University	26,834	31,429	31,478	32,804	37,858	41.1%	1
University of Georgia	10,283	10,534	11,034	12,276	13,791	34.1%	6
U of Nebraska Lincoln	4,651	4,721	5,466	5,991	5,908	27.0%	10
Louisiana St U, All Campus	13,331	12,157	13,187	15,108	16,648	24.9%	4
U of Missouri Columbia	**3,777**	**4,348**	**3,832**	**4,007**	**4,654**	**23.2%**	**11**
U of Tennessee System	12,675	12,551	15,903	12,740	15,391	21.4%	5
University of Kentucky	11,259	13,668	15,109	11,213	12,933	14.9%	8
Total	121,487	140,036	153,188	155,678	170,882		

UM-Kansas City Comparison Group*	1997	1998	1999	2000	2001	5 Year '%+/-	Rank by 2001 $
U of Missouri Kansas City	**348**	**505**	**427**	**660**	**1,665**	**378.4%**	**7**
University of IL Chicago	6,947	9,424	9,683	11,010	10,989	58.2%	1
Temple U	4,690	8,855	1,284	*	5,400	15.1%	5
U of Houston	1,815	1,707	1,762	1,689	1,992	9.8%	6
Wayne State University	10,959	11,207	10,660	10,932	10,860	-0.9%	2
Virginia Commonwealth U	9,172	8,478	8,062	7,495	8,522	-7.1%	3
U of Alabama Birmingham	16,233	16,842	10,181	7,752	8,443	-48.0%	4
U of Louisville	3,522	4,800	6,100	6,532	*		
U WI Milwaukee	374	554	*	*	*		
Total	54,060	62,372	48,159	46,070	47,871		

*Data were not available

Continued on next page

Appendix B continued

	($ in thousands)						
UM-Rolla Comparison Group*	**1997**	**1998**	**1999**	**2000**	**2001**	**5 Year '%+/-**	**Rank by 2001 $**
U of Missouri Rolla	**1,575**	**1,361**	**2,079**	**2,543**	**3,008**	**91.0%**	**4**
Colorado School of Mines	8,038	9,877	9,292	7,870	9,466	17.8%	1
Michigan Tech University	3,919	3,747	3,578	3,834	4,176	6.6%	3
Clarkson University	1,512	1,500	1,226	1,447	1,566	3.6%	5
Rensselaer Polytech Inst	9,340	10,974	10,084	6,581	5,928	-36.5%	2
Worcester Polytech Inst	1,185	1,485	*	1,380	*		
Total	25,569	28,944	26,259	23,655	24,144		

* 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*	**1997**	**1998**	**1999**	**2000**	**2001**	**5 Year '%+/-**	**Rank by 2000 $**
Wright State University	1,409	1,325	1,717	2,968	3,269	132.0%	1
U of Missouri St Louis	**274**	**273**	**386**	**461**	**395**	**44.2%**	**3**
U of Akron	3,411	2,767	2,150	3,090	2,557	-25.0%	2
UT-Arlington	2,641	2,642	2,220	*	*		
University of Wisconsin Milwaukee	374	554	*	*	*		
The University of Memphis	903	784	*	*	*		
Total	9,012	8,345	6,473	6,519	6,221		

*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 2001, B-38, http://www.nsf.gov/sbe/srs/nsf03316/tables/tabb38.xls

IR&P/lv 04/03