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. NSF data have been used because they provide consistent data on research funding for all thirty-two public AAU institutions. Please note that the data used in this study are from fiscal year 1999. Although more

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

Institution	1990	1995	1996	1997	1998	1999	% increase since 1990	% increase since 1995
U of Maryland-College Park	66,410	94,071	99,688	102,928	129,198	145,081	118%	54%
U of Florida	64,614	79,361	86,973	94,231	106,510	122,296	89%	54%
U of Colorado	116,394	169,666	177,517	192,201	228,342	244,686	110%	44%
U of Kansas	26,786	42,209	41,858	46,733	50,567	57,272	114%	36%
U of Pittsburgh	90,700	144,487	149,960	160,833	168,511	194,618	115%	35%

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 1990, 1995, and 1999.

- Among the public AAU institutions, the market share for the University of Missouri held steady at 1.11% from 1990 to 1995. But since that time, the University's market share has increased from 1.11% to 1.54%.

($ in thousands)

Institution	$	Market Share	$	Market Share	$	Market Share	MS +/- since 1990	MS +/- since 1995
U of Colorado	116,394	4.03	169,666	4.14	244,686	5.04	1.02	0.90
U of Maryland-College Park	66,410	2.30	94,071	2.30	145,081	2.99	0.69	0.69

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 1999.

- The University of Missouri ranked 27th among the 32 public AAU institutions in 1999. This is an improvement over its 1990 ranking (29th).

($ in

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 1999 the majority of federal research funds expended by the public AAU institutions were in the life sciences (52%) followed by engineering (16%), the physical sciences (13%) and environmental sciences (7%). The remaining disciplines accounted for 12% of the expenditures.

- Eighteen of the thirty-two public AAU institutions in 1999 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 69% and 77% of their federal expenditures from life sciences, respectively, Rolla garnered 70% of its federal funds in engineering. St Louis received federal funds in more evenly dispersed percentages with 32% being in the physical sciences, 22% of its federal funding in life sciences, 19% in psychology and 27% in the social sciences.

Institution	Engi-neering	Physical	Environ-mental	Math & computer	Life sciences	Psy-chology	Social sciences	Other sciences	Total
									(in thousands)
U of Washington	6	5	15	2	67	2	2	0	368,112
University of Michigan	25	5	1	2	55	1	11	0	334,226
U CA San Diego	9	9	23	10	46	1	2	0	292,007
U CA Los Angeles	12	11	3	4	67	2	1	0	251,999
U WI-Madison	14	12	7	3	54	6	5	0	249,961
University of Colorado	7	15	25	3	47	2	2	0	244,686
University of Minnesota	12	7	3	4	71	2	1	0	207,761
Pennsylvania State U	40	12	8	1	28	3	6	1	199,105
University of Pittsburgh	2	5	0	2	86	2	2	1	194,618
U CA Berkeley	27	29	2	2	34	2	3	1	191,025
U of Illinois Urbana-Cham	29	18	6	23	18	3	2	2	185,767
U of NC Chapel Hill	0	7	3	4	76	2	9	0	182,935
University of Arizona	14	30	4	3	45	1	3	0	178,126
U TX at Austin	37	29	4	15	12	1	1	0	164,913
U MD at College Park	29	23	4	10	8	1	24	0	145,081
Ohio State University	15	9	4	3	58	2	9	0	135,216
U CA Davis	8	8	1	2	79	1	0	0	124,463
U of Iowa	7	9	0	1	79	2	2	0	122,638
University of Florida	17	11	2	4	62	3	2	0	122,296
University of Virginia	16	10	4	5	62	3	1	0	108,495
Indiana Univers3 Tm0.0083 Tc[U o)9.8015.4()8.8(3 T15.4()8.)]TJ83		2	62	0	33	1	0	122,95	

Table 5:

Table 5. Market Share in Federal R&D Expenditures by Discipline Area Among the Public AAU Institutions, FY1999

Institution	Engi-neering	Physical	Environ-mental	Math & computer	Life sciences	Psy-chology	Social sciences	Other sciences	Total
									($ in thousands)
U of Washington	2.9	3.1	16.9	3.2	9.7	7.5	3.7	0.0	368,112
University of Michigan	10.9	2.7	1.4	2.2	7.2	3.9	16.7	0.0	334,226
U CA San Diego	3.3	4.4	19.9	12.5	5.3	3.1	2.1	0.3	292,007
U CA Los Angeles	3.8	4.5	2.0	4.1	6.7	5.0	1.4	0.0	251,999
U WI-Madison	4.5	4.6	4.9	3.1	5.3	13.7	6.1	0.0	249,961
University of Colorado	2.1	5.7	18.4	3.0	4.6	3.9	1.9	3.3	244,686
University of Minnesota	3.1	2.3	1.8	3.6	5.8	4.5	1.0	0.0	207,761
Pennsylvania State U	10.5	3.8	4.7	1.1	2.2	5.9	5.5	13.9	199,105
University of Pittsburgh	0.5	1.4	0.1	1.5	6.6	3.7	1.9	9.3	194,618
U CA Berkeley	6.7	8.9	1.2	1.7	2.5	4.2	2.4	10.1	191,025
U of Illinois Urbana-Cham	7.0	5.3	3.2	18.5	1.3	4.2	1.6	22.2	185,767
U of NC Chapel Hill	0.0	2.0	1.9	3.0	5.4	2.4	7.0	0.0	182,935
University of Arizona	3.3	8.6	2.0	2.3	3.2	1.0	2.6	0.0	178,126
U TX at Austin	8.0	7.8	1.8	10.4	0.8	2.0	1.0	0.8	164,913
U MD at College Park	5.6	5.3	1.6	6.4	0.5	1.4	15.8	0.0	145,081
Ohio State University	2.7	1.9	1.7	1.5	3.1	2.6	5.6	2.7	135,216
U CA Davis	1.3	1.5	0.5	1.1	3.9	1.1	0.2	0.0	124,463
U of Iowa	1.1	1.9	0.1	0.4	3.8	1.8	1.0	0.0	122,638
University of Florida	2.6	2.2	0.8	2.2	3.0	2.8	0.9	0.0	122,296
University of Virginia	2.2	1.7	1.4	2.1	2.7	2.5	0.3	0.0	108,495
Indiana University	0.0	2.8	0.3	0.9	2.8	5.6	2.2	0.6	102,262
Purdue University	4.8	2.1	0.8	1.8	1.4	1.5	1.2	1.2	95,708
Michigan State University	0.6	3.4	0.2	0.9	2.0	1.5	4.3	0.5	89,835
SUNY at Buffalo	1.9	0.9	0.1	1.2	2.3	3.5	0.6	0.0	85,490
Rutgers the State U NJ	1.7	2.0	2.5	3.5	1.0	3.0	1.9	0.1	75,664
U CA Irvine	0.6	2.0	0.7	1.6	1.9	1.4	1.0	0.0	75,505
University of Missouri-Total	1.6	1.1	0.2	0.8	1.7	3.4	2.2	0.3	74,653
U CA Santa Barbara	3.6	2.6	4.9	1.2	0.2	1.3	1.8	0.6	74,026
University of Kansas	0.8	0.9	0.7	0.6	1.5	0.1	0.3	17.8	57,272
Iowa State University	1.7	0.7	0.6	1.6	0.8	0.1	3.9	4.5	54,179
U of Nebraska at Lincoln	0.1	1.0	2.1	0.5	0.6	0.2	1.5	11.5	36,977
University of Oregon	0.6	0.9	0.6	1.4	0.5	1.6	0.5	0.0	27,336
Public AAU Distribution	761,181	619,925	331,048	232,395	2,538,456	111,942	222,546	23,591	4,852,337

Source: National Science Foundation/SRS, Survey of Research and Development Expenditures at Universities and Colleges, FY1999, B-43.
Federally Financed R&D Expenditures at Public Universities and Colleges, by Science and Engineering field: Fiscal year 1999.

P&B, 2001-2

Section II:

RESEARCH EXPENDITURES FROM INDUSTRY

Table 6:
Industry-Sponsored Research Expenditures

Table 6 shows the growth in industry-sponsored research expenditures for the public AAU institutions from 1990 to 1999 and from 1995 to 1999. 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.

- The University of Texas at Austin, Ohio State University, and University of California, San Diego have shown 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 ($65.7 million), Ohio State University ($52 million), and the University of Washington ($51.3 million).

- The University of Missouri secured $6.5 million in industry-sponsored research expenditures in 1998 and 6.7 million in 1999.

SECTION III:

Research Expenditures by Source of Funds (Table 7)

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

Table7:
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, University of Pittsburgh, University of Colorado, and University of Washington received over 75% of their research expenditures from the federal government, ranking them at the top among the public AAU institutions.

- Among the thirty-two public AAU institutions, the University of Missouri ranks near the bottom in terms of the percentage of research funds it receives from the federal government.

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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

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 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, FY1998, FY1999

($ in thousands)

UM-Columbia Comparison Group	1997	1998	1999	2 Year '% +/-
U of Missouri Columbia	**43,335**	**45,448**	**53,875**	**24.3%**
Louisiana St U, All Camp	65,257	67,090	75,831	16.2%
Colorado State University	79,393	80,451	91,943	15.8%
University of Kentucky	62,128	60,760	66,184	6.5%
University of Georgia	54,364	54,712	56,080	3.2%
Iowa State University	52,938	51,196	54,179	2.3%
U CA Davis	123,673	114,912	124,463	0.6%
NC State University	69,473	79,533	66,310	-4.6%
U of Tennessee System	74,049	69,793	70,187	-5.2%
U of Nebraska Lincoln	41,269	41,888	36,977	-10.4%
West Virginia University	29,443	24,985	26,264	-10.8%
VA Polytech Inst & St U	87,657	82,734	75,386	-14.0%
Total	782,979	773,502	797,679	1.9%
Market Share for UM-Columbia	5.5%	5.9%	6.8%	

UM-Kansas City Comparison Group*	1997	1998	1999	2 Year '% +/-
U of Missouri Kansas City	**5,380**	**6,199**	**7,206**	**33.9%**
University of IL Chicago	70,739	73,797	86,406	22.1%
U WI Milwaukee	8,156	8,936	9,409	15.4%
U of Louisville	13,521	15,067	15,536	14.9%
Temple U	26,374	28,793	29,734	12.7%
U of Alabama Birmingham	150,501	166,830	165,223	9.8%
Wayne State University	53,707	57,646	57,610	7.3%
Virginia Commonwealth U	44,982	48,167	48,175	7.1%
U of Houston	21,695	22,018	20,443	-5.8%
Total	395,055	427,453	439,742	11.3%
Market Share for UM-Kansas City	1.4%	1.5%	1.6%	

*Data were unavailable for IUPU-Indianapolis.

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Appendix A continued

UM-Rolla Comparison Group**	**1997**	**1998**	**1999**	**2 Year '% +/-**
Michigan Tech University	12,941	13,938	16,107	24.5%
Colorado School of Mines	9,330	8,694	10,704	14.7%
SD Sch of Mines & Tech	2,990	3,221	3,300	10.4%
Clarkson University	3,368	3,010	3,694	9.7%
U of Missouri Rolla	**8,080**	**7,934**	**8,731**	**8.1%**
Rensselaer Polytech Inst	22,785	21,774	22,803	0.1%
Worcester Polytech Inst	7,315	5,230	4,292	-41.3%
Kettering University	176	192	89	-49.4%
Total	66,985	63,993	69,720	4.1%
Market Share for UM-Rolla	12.1%	12.4%	12.5%	

Appendix B

Industry-Sponsored Research Expenditures for Science and Engineering R&D at the University of Missouri Campuses and Respective Comparison Groups, FY1997, FY1998, FY1999

($ in thousands)

UM-Columbia Comparison Group	1997	1998	1999	2 Year '%+/-	Rank by 99 $
Iowa State University	8,499	13,717	14,905	75.4%	5
U CA Davis	9,362	14,077	16,242	73.5%	2
West Virginia University	3,719	4,547	5,532	48.7%	10
University of Kentucky	11,259	13,668	15,109	34.2%	4
Colorado State U	5,712	6,155	7,213	26.3%	9
U of Tennessee System	12,675	12,551	15,903	25.5%	3
U of Nebraska Lincoln	4,651	4,721	5,466	17.5%	11
NC State University	26,834	31,429	31,478	17.3%	1
VA Polytech Inst & St U	11,385	12,132	13,287	16.7%	6
University of Georgia	10,283	10,534	11,034	7.3%	8
U of Missouri Columbia	**3,777**	**4,348**	**3,832**	1.5%	**12**
Louisiana St U, All Campus	13,331	12,157	13,187	-1.1%	7
Total	121,487	140,036	152,378		

UM-Kansas City Comparison Group*	1997	1998	1999	2 Year '%+/-	Rank by 99 $
U of Louisville	3,522	4,800	6,100	73.2%	5
University of IL Chicago	6,947	9,424	9,683	39.4%	3
U of Missouri Kansas City	**348**	**505**	**427**	22.7%	**8**
Wayne State University	10,959	11,207	10,660	-2.7%	1
U of Houston	1,815	1,707	1,762	-2.9%	6
Virginia Commonwealth U	9,172	8,478	8,062	-12.1%	4
U of Alabama Birmingham	16,233	16,842	10,181	-37.3%	2
Temple U	4,690	8,855	1,284	-72.6%	7
U WI Milwaukee	374	554			
Total	42,869	47,089	31,949		

*Data were not available for UIPU-Indianapolis or for University Wisconsin Milwaukee in 1999.

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Appendix B continued

UM-Rolla Comparison Group*	**1997**	**1998**	**1999**	**2 Year '%+/-**	**Rank by 99 $**
U of Missouri Rolla	**1,575**	**1,361**	**2,079**	**32.0%**	**4**
Colorado School of Mines	8,038	9,877	9,292	15.6%	2
Rensselaer Polytech Inst	9,340	10,974	10,084	8.0%	1
Michigan Tech University	3,919	3,747	3,578	-8.7%	3
Clarkson University	1,512	1,500	1,226	-18.9%	5
Worcester Polytech Inst	1,185	1,485			
Total	24,384	27,459	26,259		

UM-St Louis Comparison Group*	**1997**	**1998**	**1999**	**2 Year '%+/-**	**Rank by 99 $**
U of Missouri St Louis	**274**	**273**	**386**	40.9%	**4**
Wright State 3i Stp 8					