

Board of Visitors Retreat
July 2009
Sponsored Research

Research universities, and the means by which they perform their missions, are fundamentally different from institutions which focus primarily on undergraduate teaching, as illustrated by the following defining characteristics:

- research university faculty members are expected to teach and conduct research at a high level relative to peers in their respective disciplines;
- the infrastructure (e.g. libraries, laboratories, information technology) of research universities allows for the conduct of basic and applied research; and
- undergraduate and graduate students are educated by multiple, diverse means (e.g., general instruction, research, and extension of research into communities).

Learning and scholarship are inseparable at universities, especially those which engage in cutting-edge research. The value to and attraction of future students to U.Va. depends on the currency and quality of research. Investments in research are investments in quality education.

Benefits of research programs include attraction of the best faculty and staff, transfer of technology to commercialization and societal impact (a form of disseminating knowledge), aid to public service programs with domain expertise, and corporate partnerships.

By the nature of their missions, research universities are complex. Academic leaders who would advance the missions of research universities must give careful consideration to aligning resources and creating conditions such that levels of teaching, research and service may be optimized. The optimization of sponsored research is the topic of this brief.ⁱ

Background

Sponsored research is performed by the University under grants, contracts, and other agreements with external sponsors. These awards, called sponsored program funds, are received from a variety of public and private sources. Private funding sources are non-governmental sources of funding such as corporations or philanthropic organizations. Of the various sources of sponsored program funding at the University, the federal government is by far the largest, both in terms of the number of grants and in terms of total revenues (see Figure 1). In FY 2008, the total number of revenue producing awards for the year was 1909 (97 renewal awards for a total of \$27.12M, 473 continuation awards for \$134.64M, 476 supplement awards for \$36.95M, 859 new awards for \$113.32M, and 4 awards uncategorized for \$2.19M).

Source of Awards/Grants	Number of Awards	Total Revenues (2008)
Federal Government	851	\$223.65 million
Foundations	282	\$32.3 million
Industry	499	\$24.98 million
Other universities	178	\$14.77 million
State Government	99	\$18.52 million
Total	1909	\$314.22 million

Figure 1

The budget for sponsored agreements is divided into two categories, direct costs and indirect costs (often referred to as facilities and administrative costs). As part of its pledge to sponsor a project, the government provides funds which grant recipients use to cover the **direct costs** of their sponsored work. Direct costs can be identified specifically with a particular sponsored project or activity and can be directly assigned to that project or activity with a high degree of accuracy. Compensation of employees for performance of work and the costs of materials consumed in the performance of a specific project are typical examples of direct costs. These funds are held by the University in individual accounts which grant recipients can access as needed.

Besides the direct costs of sponsored work there are **indirect costs** associated with shared resources and administration (e.g., facilities, heating, lighting, libraries, general administration, etc.) that are indispensable to the completion of sponsored work. Therefore, in sponsoring projects, the government also agrees to reimburse the University for the indirect costs associated with these projects. Recovered indirect funds are centrally received and allocated by the University.

The indirect costs of a particular sponsored project are difficult to determine since they involve resources used in common with other projects. Because of the difficulty involved in determining the indirect costs of each individual sponsored project, federal sponsors agree to reimburse the University for indirect costs according to a fixed percentage rate of the direct costs of sponsored work. This rate is the product of negotiations between the University and the particular federal agency responsible for arbitrating and approving indirect funding rates at the University. The University currently negotiates with Department of Health and Human Services (DHHS). The objective of these negotiations is to determine a fair repayment via indirect for costs related to work which the sponsoring agency has agreed to support. The negotiated rate of indirect funding applies to funds received from all federal agencies for a stipulated time period.

Negotiations take place in the final year of the University’s agreement with the government. Federal policy dictates that University accounting records from the last completed fiscal year serve as the primary documents in negotiations. The University initiates the process by sending a financial disclosure report and supporting materials to DHHS. The University’s report and supporting materials are reviewed by a federal negotiation team that spends months investigating these documents for logic of accounting, reasonableness, thoroughness and consistency.

Comparison to Peer Universities

Only 96 of the 4300ⁱⁱ institutions of higher education conduct very high research activityⁱⁱⁱ. The most recent peer data available from National Science Foundation (FY 2007) reveal that federal research and development obligations to the top 100 research universities totaled \$21.0 billion, or 82.6%, of total federal research obligations. The University of Virginia is among the top 50 research universities in the United States, according to National Science Foundation (NSF)^{iv} and according to a ranking conducted and published by The Center for Measuring University Performance.^v

TABLE 1. Federal obligations for science and engineering research and development to the 100 universities and colleges (12 shown here) receiving the largest amounts, ranked by total amount received, by agency: FY 2007

(Dollars in thousands)

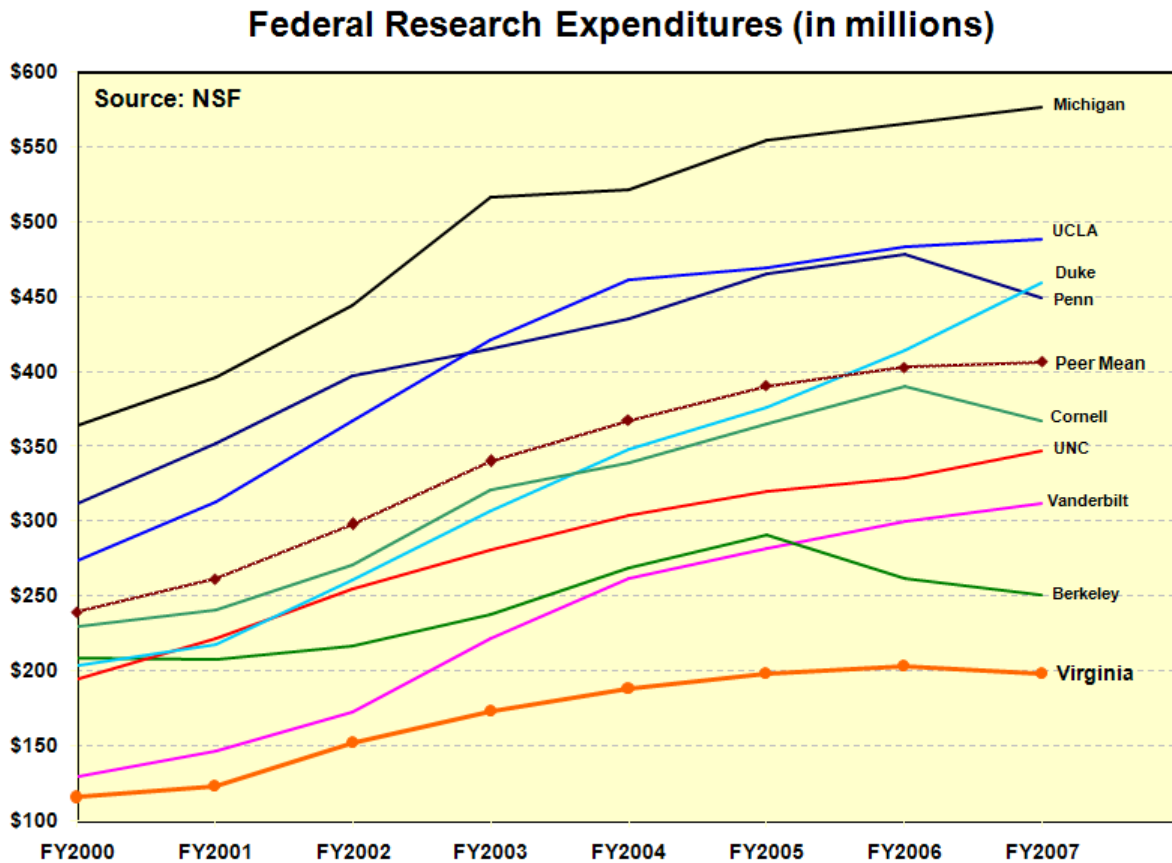
Rank	Institution	All agencies	DOD	DOE	HHS	NASA	NSF	USDA	Other
	All institutions	25,419,370	3,065,971	812,131	16,259,892	552,963	3,286,003	732,196	710,214
1	Johns Hopkins U	1,186,768	511,254	3,086	589,278	37,750	30,247	705	14,448
5	UCLA	480,679	26,661	16,810	368,130	10,220	57,576	1	1,281
10	U. Pittsburgh all campuses	426,764	22,773	3,069	383,325	184	16,294	27	1,092
15	MIT	381,753	53,044	57,069	200,070	11,662	54,765	0	5,143
19	UNC Chapel Hill	353,478	6,871	2,759	310,186	307	21,277	810	11,268
20	Vanderbilt U.	331,244	18,686	2,837	288,566	1,603	11,480	0	8,072
25	U. Rochester	255,201	14,830	51,081	172,392	389	8,449	0	8,060
30	U. AL Birmingham	235,077	19,455	310	209,697	1,176	2,808	0	1,631
34	UC-Berkeley	214,549	17,510	8,364	94,646	10,751	75,275	2,185	5,818
40	U. Va.	198,978	14,672	4,022	147,402	2,688	21,595	0	8,599
46	Georgia Tech	174,486	98,538	5,510	18,747	3,978	42,706	946	4,061
80	Virginia Tech	91,626	18,605	5,167	15,379	1,806	25,629	13,831	11,209

DOD = Department of Defense; DOE = Department of Energy; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NSF = National Science Foundation; USDA = U.S. Department of Agriculture.

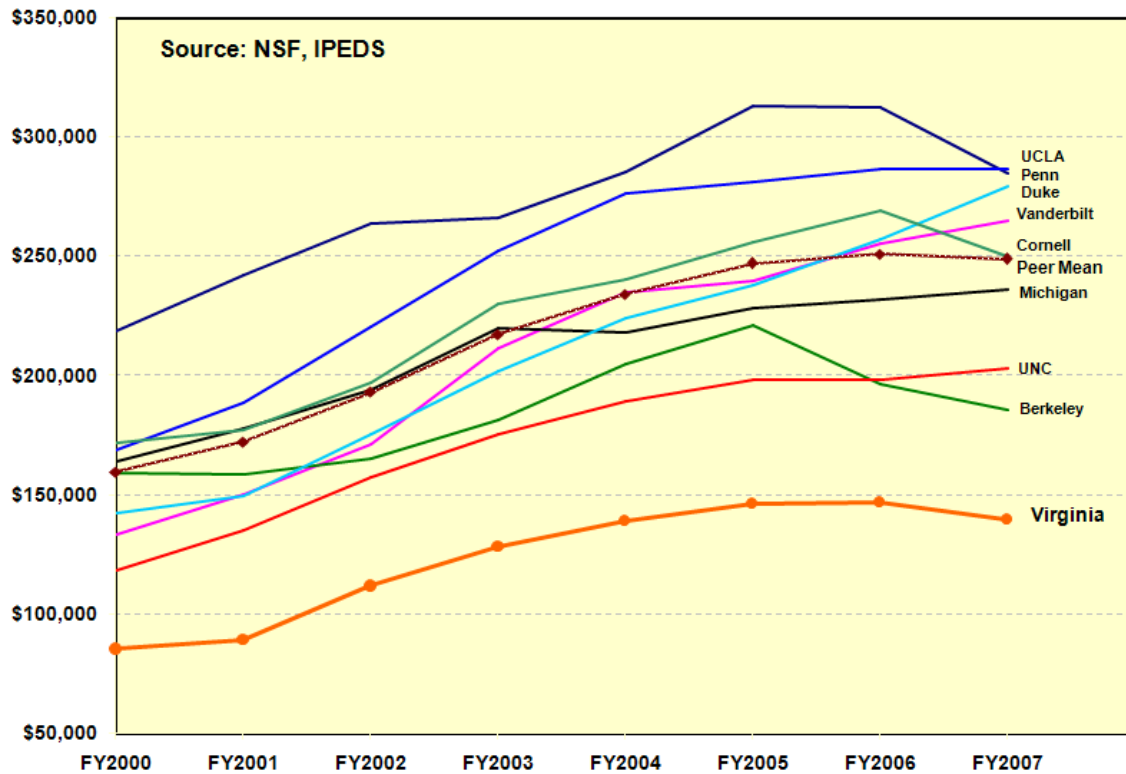
SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions, FY 2007.

Federal Research Expenditures

The following measures provide an evaluation of research activity as measured by federal research expenditures reported to NSF in an annual survey. The first graph presents total federal research expenditures for the University and peers; the second graph presents the amount of federal research expenditures per faculty member (IPEDS full-time tenured and tenure-track faculty).



Federal Research Expenditures Per Tenured and Tenure-Track Faculty



Analysis

In 2007 UVa received \$198 million in federal research expenditures. Over the eight-year period represented above, UVa's rate of growth in federal research expenditures was slightly less than that of the peer mean. It is important to note that the number of faculty in the University's science departments is smaller compared to our peers. Proportionately, we have more humanities faculty, who traditionally do not receive sponsored research funding.

UVa receives the majority of its federal funding from NIH. As NIH budget increases leveled off over the past several years, the University's federal research expenditures have followed suit, as have those of our peers. Future overall UVa research spending will largely depend on the ongoing federal agency R&D budgets.

Sensitivity/Cost-Benefit

As highlighted in the University's Commission on the Future strategic plan, UVa is planning to selectively increase faculty in sciences and engineering and construct new laboratory space. Also, the University's restructuring agreement with the state calls for UVa to grow its sponsored research expenditures by approximately 2%-4% a year over the next several years if federal resources permit. To achieve this target, UVa will need to implement the recruiting and research

facility building plans outlined by the Commission, which include targeted hiring for new outstanding science and engineering faculty and purchasing equipment for their work.

Currently, the University is constructing 400,000 gross square feet of new research space (Carter-Harrison, College science building, and Rice Hall) with additional GSF available in the Ivy Building and Life Sciences Annex, pending funding.

With the new state-of-the-art research space being developed, with improvement in efficiency of existing faculty, and with the planned targeted recruitment of outstanding new faculty, the University should be able to positively impact the federal research dollars spent per faculty member. However, this performance measure will take time to change as the strategic recruitment and research plans and priorities evolve.

Issues for Consideration

Studies of universities and medical centers reveal that research investigations, even those which attract considerable support from federal sources, in the majority of instances, require significant financial subsidies from their respective institutions.^[1] Research, therefore, does not “make money.” In the case of technology transfer, certain research products may be sold, but this is not the norm. Research is a vital process and outcome for the top universities, and they cannot exist without it. However, making judicious investments in research requires careful consideration as it should be placed among the other missions of education and public service, which also require support.

Equally important to research success, is effective establishment of an environment which allows and encourages innovation and discovery. Tom Skalak, Vice President for Research, as a continuation of the work of the Commission on the Future of the University, has initiated a pan-university discussion about the future of research, innovation, science, and engineering. After reviewing approximately 100 school priorities, planners have arrived at a set of nine targeted programs; the top three are energy, sustainability, and public health. This summer, Mr. Skalak will convene a number of smaller groups to discuss these topics and consider how the programs and emphases may be formed into a strategy for the University’s science aspirations. Some of the criteria which the group might use when evaluating programs will include existence of strong leadership, availability of sustained follow-on funding, gap analyses versus peers, and ability to distinguish UVa.

Questions for discussion:

1. To what extent can/should the University invest in research?
2. What areas of research are most compelling?

ⁱ Contents of this brief are excerpted from University sources, including presentations made by Ms. Reynolds, Mr. Skalak, and briefs prepared for University planning efforts.

ⁱⁱ 4300 for-profit and non-profit, two-year and four-year, colleges and universities

ⁱⁱⁱ This widely-used classification is used by the Carnegie Corporation.

^{iv} <http://www.nsf.gov/statistics/infbrief/nsf09313/>

^v The Center ranks all research universities on measures of research, private support, faculty, advanced training, and undergraduate standardized test range.

^[i] Academic Medicine, Vol. 84, No. 1 / January 2009