

Research and Scholarly Activities, FY 1997

A Presentation to the Regents by Frederick C. Neidhardt, Vice President for Research, on December 18, 1997

INTRODUCTION

This presentation accompanies the annual report, 1997 Research and Scholarship: Expenditures, Proposals, and Awards, submitted to the Regents each year at this time. The full report may be consulted for details on "the numbers," including data on individual academic and research units, as well as information on the many sources of support for research and scholarly activities. Here, we present only highlights, and place them in the context of the perennial questions of interest to the Regents--how are we doing? what does the future likely hold? and what lessons can we learn from the data?

CONTEXT

First, the context. The dawning of the tenth decade of this century saw the University of Michigan rise to become the nation's #1 research university, measured by the volume of its annual expenditures from all sources in support of research and scholarly activity. The current group of Regents are accustomed to having OVPR report Michigan's continued growth in the volume of research and its current hold on the #1 position nationally in this category.

But we have not allowed ourselves joyous and spontaneous celebrations over our victories--OVPR has always been there saying it won't last...the bubble will break...the outlook for the future is dark. Two years ago the forecast of the AAAS for federal support of research based on the 1996 budget carried the frightening prospect of as much as a 33% cut in federal nondefense R&D by the year 2002, based on the combined effects of balancing the federal budget and reducing taxes. Analysis of the 1997 budget led to a lowering of these projections to a 23% cut over the same time period. More recently, the AAAS analysis of the balanced budget agreement reached earlier this year by Congress and the president projects a 14% decline in R&D by fiscal year 2002. While this is a sizable decrease, clearly the attitude concerning the federal role in R&D has changed significantly just in the past couple of years.

Sense of Congress. What's the story today? Two notable changes from last year stand out. First, the voices of support in Congress from both major political parties are now so numerous as to imply a clear commitment to the concept that the nation's well-being demands a continued participation by federal agencies in research support in a big way. For example,

- On October 22, Senators Phil Gramm (R-Texas, fiscal conservative and deficit hawk) and Joseph Lieberman (D-Conn.), and Pete Dominici (R-New Mexico and Chair of the Senate Budget Committee) introduced a bill calling for a doubling of all federal nondefense research funding over 10 years.
- Last Spring the Senate approved a resolution that calls for a doubling of the NIH budget over five years.
- A well publicized survey by Research!America revealed widespread public support for increased research expenditures, even at a direct per person cost.
- Senators Tom Harkin, Arlen Specter, Connie Mack, Ted Kennedy, and Orrin Hatch have made different proposals on using funds from the proposed tobacco settlement for biomedical research.

- House Speaker Newt Gingrich has recently called for a doubling of the NIH budget in five years and has stated that a portion of any future federal budget surpluses should be invested in science.

Obviously, introducing legislation and calling for increases in funding won't buy even one petri dish. But, significantly, it is at least fashionable now to be on the side of research investment, no matter what one's social, political, or economic agenda. Moreover, in what may turn out to be an even more significant development, we have Congressman Vernon Ehlers of Michigan, supported by James Sensenbrenner, Chair of the House Science Committee, spearheading an effort to achieve what the University of Michigan under the leadership of Homer Neal has been calling for--an explicit statement, endorsed by both the legislative and executive branches of government, of the role of the federal government in supporting research, and the means by which it should do this, in large part through the nation's research universities.

What brought about this increased visibility of the research responsibilities of the federal government? We should acknowledge that an intensive educational effort has been in effect for the past three years. Professional societies, research universities, private industry, and many other voices have made themselves heard on this score. The University of Michigan has been active through the American Association of Universities (AAU), the Science Coalition, and the Committee on Institutional Cooperation (CIC). Through sponsorship of the Wiesner Symposia we have taken a national leadership role. Through our participation in the many coalitions organized around the issue of research support (AAU, CIC, Science Coalition) our voice has been magnified by union with others. By our sponsorship of events in Washington and on campus we have made sure that Michigan's congressional delegation has heard our story. In all these ways the voice of each faculty member at Michigan has been amplified.

Budget Appropriations. The second notable change is the increase in budgets for science in major sectors of the federal scene.

- the NIH budget is up 7.1% (1998 over 1997)
- the NSF budget is up 6.1% (1998 over 1997)
- no major supporters of university research other than the Department of Transportation suffered budget reductions in 1998

In large measure this is due to an unprecedented period of economic health of the nation. The national budget is approaching a balanced state without draconian cutbacks in major research investments.

Unfortunately neither of these changes should mask the harsh reality that Congress has not taken any of the difficult steps necessary to avoid major perturbations of the budget in the coming years. The collision course between a balanced budget and tax relief on the one hand, and the inexorable growth of entitlements on the other can be avoided only if Congress adopts some measures that so far it has not had the will to do. The Regents have seen the evidence for hard times-a-coming; this reality has not changed. Nor has the need changed for continued vigilance, education, and advocacy in support of research.

THE NUMBERS

The University of Michigan continued its upward course in total expenditures for research,

reaching a record \$458M in FY 97. Even corrected by the relevant inflation index, we have continued to grow.

We remain #1 in the nation by this measure. Other measures--academic publications, awards and fellowships per faculty member--are valid, and by any common set of criteria the U-M ranks among the top in the nation.

Our support has come from multiple sources, but still overwhelmingly from federal agencies through competitive, peer-reviewed applications by our faculty.

The units with over \$10M in research expenditures remain: Medicine, Engineering, LSA, the Institute for Social Research, Public Health, Social Work, and the UM Transportation Research Institute.

There have been subtle changes in the overall complexion of Michigan's research in this ten-year period, but the major areas have retained their relative position. Many interesting features are not revealed in this slide, such as the increase in team projects, some of which cross school boundaries, and the fact that over \$40M is now expended annually on research related to environmental issues.

The increase seen in 1996 in industry-related research support was not sustained in 1997, and in fact decreased. This decrease resulted in a flattening of the non-federal, non-U-M funds expended for research. Happily, the pipeline looks better; there is an increase in awards in 1997 which should show up as expenditures in 1998.

The top 10 universities with regard to federal grants and contracts garner nearly a quarter of the total federal research funding to the nation's colleges and universities. This fraction has been declining slightly but consistently throughout the past decade.

The U-M is one of these top ten research universities. But while several of our peer institutions have seen significant declines over this period, we have maintained or improved our competitive position. Our trend has been upward to just over 2% of the national expenditure on research over the past decade.

LESSONS TO BE CARRIED AWAY

1. What Michigan's faculty is doing is what it should be doing. We are successfully competing for our share of the federal investment in research. When this growth is coupled with the recognition coming to Michigan for its success at involving undergraduates in research experiences (such as the recent Recognition Award for Integration of Research and Education from NSF), the result can be viewed as strengthening the ability of U-M to deliver an unusual education to its undergraduates.
2. We should continue in place every device we have for nurturing new avenues of inquiry made possible by the intellectual efforts of our faculty. Our seed funds for new explorations, our establishment of incubator units to give new consortia of faculty a chance to thrive, our cost sharing and infrastructure support of research--all these efforts contribute to success. Our recent investment of over \$7M to purchase a

partnership in the Magellan telescope is but one example of the risk accepting that should be continued.

3. We should continue using every means we know to inform Congress and the public of the need for university-based research, and the vital role of federal and state funding in this endeavor.
4. We should craft a budget model for the University that will protect our tradition of cross-disciplinary and cross-unit collaboration in research.
5. Throughout all of these efforts, we must retain the core value that our research and educational objectives are inextricably interwoven...that attention to both is essential for the preservation of the uniqueness of Michigan.