

have been entitled under the 3.6 percent ceiling imposed by OMB on faculty salaries charged to departmental administration. Institutions receiving state funds might be put in the same position.

A far more desirable approach would be to establish a threshold rate for administrative costs with the option to establish a higher rate with increased documentation requirements. This option recognizes that the government continues to make new regulations requiring increased administrative expense in connection with human research subjects, laboratory animals, drug-free workplace and work force, changing audit standards and procedures, safety in the work environment, biohazards, hazardous waste disposal, and procurement certifications and assurances, among others. For instance, the indirect costs of environmental medical services on the MIT campus have grown from \$974,000 in 1985 to \$1.5 million in 1990, an increase of more than 50 percent. Proliferating federal regulations not only add to the costs of central administration but increasingly divert faculty investigators from their research to satisfy the administrative and record-keeping requirements associated with a range of regulatory compliance programs.

It is also time to take a more realistic view of the useful lifetimes of buildings and equipment acquired with nonfederal funds and used in research and to reflect this in indirect costs for depreciation.

Indirect Costs at the University of Minnesota

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THE UNIVERSITY OF MINNESOTA, A LARGE, PUBLIC, LAND-grant institution, has a total five-campus enrollment of 44,500 undergraduate and 8,500 graduate students. It pays 5,100 full-time and 1,054 part-time academic employees, 11,500 full-time and 2,500 part-time civil service employees, and 1,500 full-time and 5,500 part-time student employees. The research enterprise in fiscal year 1990 reported expenditures of more than \$218 million for externally sponsored research, training, and public service grants and contracts. Of this total, \$155.5 million came from the federal government (\$122.6 million for direct costs and \$32.9 million for indirect costs).

The University of Minnesota's present indirect cost rate, 44 percent, includes the following components: plant operations and maintenance, 17.92; building use, 2.26; libraries, 0.68; equipment use, 1.26; departmental administration, 13.99; general administration, 5.90; and research administration, 1.99. Recently completed negotiations with the Department of Health and Human Services decreased the rate to 40 percent (component breakdowns are not yet available), primarily due to growth in research expenditures and to cost reductions related to the overhead components.

Discussion

Plant operations and maintenance. The indirect cost amount identified for plant operations and maintenance, which includes heat, electricity, janitorial services, hazardous waste removal, and building repairs, stands at about \$82 million. On the basis of a study of each campus building, 20 percent of the space at the University of Minnesota is allocable to research. Applying the 20 percent research

There are no magic bullets that will solve the indirect cost problem, and these are only a few starting points. Before any progress can be made, however, there must be a shared vision between Congress, the administration, and the university community as to how and why the federal government should support research and training at universities.

Along with federal support for the infrastructure of American universities, the basic relation between the universities and the federal government for the support of research has been eroding for more than a decade. The underpinnings of the system—investigator-initiated research, peer review, and full funding—have come under increasing attack.

If the view is reaffirmed that the federal funding of university research is an investment in the national interest, then the needed revision to A-21 can effectively be accomplished without changing the founding principles of A-21. If A-21 is rebuilt to reflect the view, whether by design or default, that universities are simply another type of vendor, and that research should be done in the places that have the lowest overhead, the highest level of cost sharing, or the greatest access to other funding sources, then A-21 will itself contribute to altering and curtailing federal government–university relations and the capacity of the university community to respond to national needs.

space figure to the \$82 million yields \$16.4 million in indirect costs.

Building use. The total purchase price of all buildings on the five University of Minnesota campuses is \$1.065 billion. The federal government allows universities to claim 2 percent of the original purchase cost as an indirect cost. Accordingly, \$21.3 million is included in the indirect costs pool. On the basis of an account of the original cost of the space in each building attributable to research, \$1.96 million is recovered from federal sources.

Libraries. The expenditures for the University of Minnesota Libraries in fiscal year 1990 were \$36 million. In lieu of conducting a costly study of library use, the university uses the Office of Management and Budget's (OMB's) A-21 "default" method, which adds an estimate of public use to the known numbers of faculty, staff, and graduate and undergraduate students. Then, the number of full-time equivalents for faculty, graduate students, and staff engaged in research is calculated and correlated with the portion of library costs allocated to each group from the initial use estimate. This calculation allows \$1.16 million to be recouped from federal sponsors for indirect research costs.

Equipment. The University of Minnesota's equipment use rate of 1.99 is derived from the identification of the total equipment value, which is \$255 million. OMB A-21 allows about 6.7 percent of this amount to be charged over a 15-year period. This method identifies \$17 million as total indirect costs related to equipment use. On the basis of the 20 percent calculation of space devoted to research, \$3.12 million is recovered from federal sponsors.

Administration. The components of departmental, research, and general administration (totaling 21.88) are all calculated from the sum of the portions of administrative costs from the university's financial statements that are allocable to research. Included in the component for departmental administration (13.99) are a portion of the costs for collegiate deans, department heads, and faculty involved in research administration (capped at 3.6), plus clerical and secretarial salaries and related expenses allocable to research support. The research administration component (1.99) includes allowable costs incurred by the sponsored programs office. The general administration component (5.90) includes portions of costs such as accounting, purchasing, and appropriate vice presidents' offices that are allocated to research. Totaling these categories allows the recovery of \$16.4 million from federal research sponsors.

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Direct Charging

The University of Minnesota charges as direct costs of research some costs that other institutions may recover through the indirect cost rate. These include such items as printing, technical shops, and telephones. Also charged directly but subsidized heavily by the University of Minnesota are computer services (\$8.5 million total cost, including a \$4.5-million institutional subsidy) and costs related to caring for and using animals in research (\$2.6 million total cost, including a \$372,000 subsidy). The subsidies mean affordable services for researchers and a lower charge to all users, including the federal government. Because costs must be assigned either completely as direct costs or indirect costs, the university cannot recoup any of its subsidized costs through indirect cost recovery. These subsidies will be reviewed in light of current financial difficulties, which may result in increased costs being directly charged to grants and other users. Normally, secretarial and clerical employees who support research activities are charged as indirect costs under the departmental administration component of the indirect cost rate. However, for large, complex, multidepartmental grants or contracts that require unusual tasks, support personnel may be charged directly to those grants and contracts.

Cost Sharing

The University of Minnesota effort reporting system has historically captured both voluntary and mandatory cost sharing. The Department of Health and Human Services' strict interpretation of OMB's Circular A-21, its cost accounting guidelines, requires the inclusion of cost sharing in the research base. Excluding voluntary cost sharing from the university's research base would increase the research indirect cost rate by nearly 2 points.

Use of indirect cost recovery funds. Although funds reimbursed as indirect costs are not required to be expended for indirect or research purposes, all of the University of Minnesota's indirect cost recovery funds are used to support research-related activities. For example, of the \$32.9 million received in indirect cost payments in fiscal year 1990, 25 percent was used to support research-related administration, scientific computing, and other research-related activities such as operations and maintenance of animal facilities and removal of hazardous wastes. About 12 percent was allocated for library acquisitions and automation and for financing of building and equipment capital expenditures (that is, in addition to general funds devoted to building and equipment acquisition and maintenance, which amount to far more than the total recovered through the indirect cost rate). The remaining funds, more than half the total, were distributed to colleges to provide research setup funding for new faculty, to acquire equipment, and to support initiatives in research that will enable faculty to pursue projects with the federal government and others.

It is becoming increasingly important for the University of Minnesota to obtain state-of-the-art research equipment and to maintain leading-edge laboratories to compete successfully for all sources of research funds. With the condition of the state of Minnesota's budget and the reduction in state funding for the university, any further reduction or limitation of indirect costs will seriously threaten the vitality of the institution's research enterprise.

Cautions and Suggestions

Capping indirect cost rates or their specific components is receiving much attention as a method of reducing these rates, while supposedly freeing up money for direct funding of research. This is a potentially dangerous quick fix. Even though the University of Minnesota would

not now be affected by the proposed caps, these caps pose questions about the fundamental philosophy of supporting actual indirect costs of research. A cap is at best an economic threshold and at worst an arbitrary decision based on idealism—not on determination to support high-quality research.

Rather than to place arbitrary caps on indirect costs, there is a need to clarify guidelines for charging certain institutional costs as indirect costs of research. To little avail, universities and federal auditors spend a great deal of time interpreting the A-21 guidelines. Institutional or individual failure or inability to carefully scrutinize the suitability of costs leads to damaging public revelations that hurt the overall research effort. Clarifying the guidelines and setting uniform standards of federal scrutiny for all universities would reduce these failures and the time spent haggling over rule interpretations.

The recent scrutiny of various administrative costs has failed to identify some of the costs universities bear for what many say are extraordinary and unnecessary federal requirements. For example, the effort reporting requirements of A-21 cost the University of Minnesota and the federal government more than \$4 million annually to complete. This is a requirement that is carefully followed by the institution, but it offers no value in management of research. Individual federal agencies have rarely asked for these reports, and auditors ask to see records on specific grants only once or twice a year. Some changes in this area are needed. The cost of maintaining an effective system of effort reporting far exceeds the very amounts receiving national scrutiny as inappropriate indirect research costs.

The age of an institution's physical plant is another issue that looms large when calculating the indirect cost rate. The University of Minnesota is an older institution founded in 1869. Many of the buildings used today for teaching and research were completed before 1950, and approximately 80 percent of all buildings were built before 1970. Thus, the original cost of the buildings to which the 2 percent use allowance is applied is small by today's costs and translates into a low recovery in the building component. The needed modernization of buildings and equipment to maintain the nation's research capacity is important, and attention is needed to increase the recovery rate for this purpose. Some would propose that all or some portion of indirect cost recovery funds be devoted entirely to buildings and equipment, but this ignores the fact that the University of Minnesota and most other research universities expend considerably more general funds for this purpose than they recover from sponsors of research and that institutions need flexibility to provide matching support and respond to research opportunities.

Differences in institutional library services, especially whether they are public or private, is another area that causes disparities among universities' indirect cost rates. During the past decades of supporting university research, the federal government has bought into a culture in which university libraries are expected to provide something for all their users. Most of the journal acquisition driven by this expectation supports the needs of faculty and student research, yet the costs involved are unfairly spread to undergraduates, professional staff, and the general public. The director of the University of Minnesota Libraries estimates that two-thirds of its journal and book acquisition and maintenance costs are incurred to support the needs of researchers, yet the reimbursement is calculated based on total numbers of users versus research users, yielding an indirect cost recovery far below the actual costs related to research.

In conclusion, universities differ in many ways that can affect their indirect costs: private versus public, old versus new, large versus small, type of research (mostly medical versus mostly social sciences, for example), or use of direct versus indirect charging of research expenses. Extreme caution must be used to avoid hurting individual universities or the nation's overall research capacity, which already is threatened by deteriorating and outdated laboratories, state financial crises, and federal budget limitations.