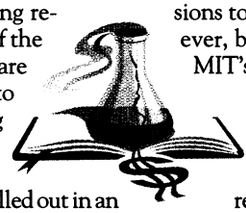
A Threat to Graduate Research



A change being contemplated in the rules governing reimbursement for graduate student tuition has some of the country's top research universities up in arms. They are charging that the federal government, in an effort to simplify its bean counting, could end up discouraging research by graduate students yet save no money in the process.

At issue are the complex accounting procedures spelled out in an infamous government document known as circular A-21. A-21 contains the rules governing what expenses universities can legitimately claim as indirect costs, and what must be charged as direct costs against a faculty member's grant. A-21 says graduate student tuition is a direct cost. But faculty members, especially those at the elite schools with high tuition, say that accounting scheme presents them with a dilemma. Do they fulfill their educational mission and use some of their precious grant money to train relatively inexperienced graduate students, or do they pay a bit extra for postdocs, who would be more productive in the lab's research? California Institute of Technology's vice provost David Goodstein says that most faculty at his school would "tilt" toward bringing in a postdoc if they had to follow A-21's tuition prescription.

To prevent that from happening, Caltech and several other schools had convinced the government to grant a waiver from A-21 rules, permitting them to charge graduate student tuition to an employee benefit pool, spreading the burden of payment across all researchers and employees at the university, and lowering the direct cost to any one investigator. Under this cost-sharing arrangement, even the labs and faculty members who have few, if any, graduate students ultimately pay part of the tuition bill.

A White House task force that is looking into possible revisions to A-21 is contemplating ending these exemptions, however, because they can result in some inequities. For instance, MIT's Lincoln Laboratory, which depends heavily on funding from the Department of Defense (DOD), relies mainly on postdocs and technicians. Its DOD grants, therefore, end up subsidizing MIT's 2200 or so graduate students, most of whom are involved in nondefense research. Why should DOD pay a share of the tuition of students not directly contributing to Lincoln Lab research?

MIT, Caltech, and the few other schools receiving the waiver acknowledge this logic, but respond that the government, as a whole, benefits from the indirect payment method by encouraging graduate research. After MIT inaugurated this accounting method in 1983, for instance, the number of graduate research assistants rose dramatically from 1500 then to 2200 in 1991. Officials at these schools, therefore, are battling not to lose their waiver. "Nothing would dispirit the faculty more," Caltech's president, Thomas Everhart, recently warned a panel of presidential science advisers. Tony Potami, the University of Minnesota's vice president for research, says: "We will erode graduate education in this country." In addition, the schools point out that their indirect payment method does not cost the government extra money.

In the final analysis, the task force must decide between a logical cost-accounting scheme—directly charging graduate tuition to a research grant—and a more convoluted, and potentially inequitable, method that encourages graduate research experience. "We're far from any conclusion," task force executive secretary William Raub told *Science*. Raub's panel is due to produce a new draft of A-21 in early October.

–J.T.

to cover teaching costs.

- Limit or abandon needs-blind admission policies—in other words, include the ability to pay as a criterion in accepting students (an option Thier says is not being contemplated by Brandeis).
- Expand master's degree programs. These generate revenue, since students in these programs typically pay full tuition.
- Make a better case to the corporate sector and the public that universities are worth supporting.

The crisis may produce as many different solutions to the problem as there are types of university. Some schools may focus on achieving excellence in a particular niche. Others may build upon their core mission and retreat from specialized ventures. And perhaps some entirely novel solutions will come up as well—like the electronic university predicted by Donald Langenberg—a community of scholars without a campus, linked by computer networks.

For some researchers, the troubles of universities have had a dispiriting effect. Entomologist Thomas Eisner at Cornell says he has had to help graduate students come up with low- or no-cost research projects. True, good research can be done with very little money: "With a calculator and a spider you have a lifetime of research studying webs," he says. But he worries that rigid departmental structures and funding agencies' fickle devotion to "fashionable" research topics make it "hard to paint a glorious future" for those contemplating an academic career.

But pharmacologist Paul Talalay of Johns Hopkins opts for a longer vision and does not think that "our future is behind us." "Universities are amongst the most stable of human institutions," he says, calling attention to the fact that the great European universities have been around for a millennium or more. "The current crisis is a small ripple in the ocean of time," he says.

Cornell's Wiesenfeld, an administrator who still manages to do NSF-sponsored research in chemistry, also remains optimistic about the future. "We will survive, and the good universities will prosper, he says. "But they will be very different from the universities of the 1970s and 1980s."

–Eliot Marshall & Joseph Palca

With reporting by Marcia Barinaga.

THE RESEARCH TOP TWENTY

1980	1990
1. Johns Hopkins	Johns Hopkins
2. MIT	MIT
3. U Wisconsin, Madison	U Michigan
4. UC San Diego	U Wisconsin, Madison
5. U Minnesota	Stanford
6. Stanford	Cornell
7. U Washington	U Minnesota
8. U Michigan	Texas A&M
9. Cornell	Penn State
10. Columbia	UC Los Angeles
11. Harvard	U Washington
12. U Pennsylvania	UC San Francisco
13. UC Berkeley	UC San Diego
14. UC Los Angeles	UC Berkeley
15. U Illinois, Urbana	U Texas, Austin
16. U Texas, Austin	U Illinois, Urbana
17. U Southern California	Harvard
18. UC San Francisco	UC Davis
19. Penn State	U Arizona
20. Texas A&M	U Pennsylvania

SOURCE: NATIONAL SCIENCE FOUNDATION

Where the money goes. The leading university recipients of federal research dollars. (Public institutions are shown in red, private colleges in blue.)