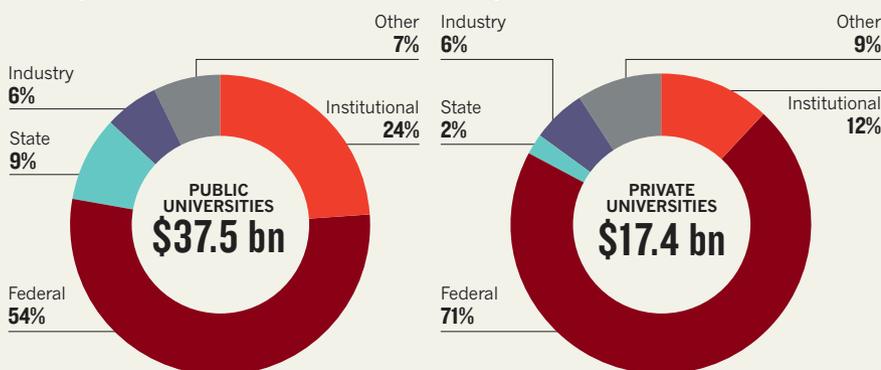


SOURCE: NSF

## FOOTING THE US RESEARCH BILL

With state support falling below 10% of total research funding, public universities are increasingly relying on institutional funds, and student tuition fees in particular. The effect is less pronounced at private universities, which rely more on federal research dollars and can have large endowments.



Research and development funding source as a percentage of total (2009)

### FUNDING

# Thrift in store for US research

Science academy panel to call for university fat trimming.

BY EUGENIE SAMUEL REICH

When state budget woes threatened the University of California system in 2009, more than 300 leading scientists wrote to then-governor Arnold Schwarzenegger to plead for protection. It did little good: the state cut more than US\$630 million from the university's budget, forcing the institution to slash faculty members' salaries and hike student tuition fees.

The US National Academy of Sciences is finalizing a plan to spare other universities from a similar fate, or worse. Last year, after state budget cuts across the country hit many public universities, and even the wealthiest private universities saw their endowments drop by more than 20%, Congress turned to the academy for advice about how to put research universities on a stable long-term footing without costing the country too much more.

Scientists might not like the answer. *Nature* has learned that the report, scheduled for final release by the end of the year, is likely to suggest that US universities become much more efficient.

The recommendations of the 21-person panel, an influential group of researchers, business people and university administrators, are still in draft form. But members of the panel spoke to *Nature*: some in general terms, and some only on background, because draft

information is considered confidential. They suggested that their call for belt-tightening will not spare universities' most prized assets: researchers and laboratories. "There is a concern about costs," says study chairman Chad Holliday, former chief executive of chemical company DuPont and now chairman of the board of Bank of America, based in Charlotte, North Carolina.

Academic researchers might be asked to save money by sharing equipment, facilities and supervision duties — not only between research groups, but even between institutions in the same city. The panel highlights the example of multi-institutional research centres such as the US Department of Energy's Energy Innovation Hubs.

Such efforts can draw federal and state support, says Claude Canizares, vice-president for research at the Massachusetts Institute of Technology (MIT) in Cambridge, who is not a member of the panel. He points to the Massachusetts Green High Performance Computing Center, a project costing more than \$100-million, under construction in Holyoke. It has up to \$25 million in support from the state and will provide shared supercomputing facilities for MIT, Boston University, Northeastern University in Boston, Harvard University in Cambridge and the state-wide University of Massachusetts system. "We're pooling our resources," says Canizares.

As another cost-cutting measure, the panel is likely to urge state and federal governments to simplify some of the regulations that apply to research grants. "My private view is that federal oversight is well intentioned, but it can be piled on from all directions," says panel member Peter Agre, a Nobel-prizewinning molecular biologist at Johns Hopkins University in Baltimore, Maryland. Universities have lobbied against 'effort-reporting', for example, in which researchers are told to document how their time is spent on particular projects.

Along with the bitter medicine, the panel will also offer a recommendation that universities will welcome: a call to grant funders to pay the full indirect costs of research, or overheads. These include administration costs and building maintenance and depreciation, and generally amount to about 30 cents on the dollar.

Current US government policy is for funding agencies to pay full indirect costs, but in 1991 Congress imposed a cap of 26% on the administrative costs that institutions could recoup. Moreover, agencies sometimes claim exemptions. In 2010, for example, the National Institutes of Health said that universities could not charge overheads for genome-sequencing arrays, because the expensive devices have few administrative costs associated with them. Some private funders, such as the James S. McDonnell Foundation in St Louis, Missouri, which finances brain research, refuse to cover indirect costs at all.

The result is that universities are increasingly subsidizing grants from their own funds (see 'Footnote the US research bill'). Between 1969 and 2009, the proportion of research funding supported by institutional money rose from 10% to 20%, according to the US National Science Foundation. Public universities and all but the wealthiest private ones are increasingly taking that money from tuition fees. "The cost of research gets passed on to undergraduates," says Ronald Ehrenberg, an

**The call for belt-tightening will not spare researchers and laboratories.**

economist at Cornell University in Ithaca, New York, and a member of the panel. This erodes public support for research universities — a trend that the panel hopes to reverse with its recommendations.

The panel members are aware that allowing universities to charge more for overheads could leave less grant money available for research, and that cost-cutting on campus would squeeze research further. But their report will urge the government to target funding strategically, concentrating on research areas with the greatest potential to produce innovation and jobs, says Holliday. "We are trying to be the first in the world to leading-edge technology, because that brings the most prosperity to the American people." ■