

Laggards in Paying for Science: Universities and Industry

October 01, 2008

Agreed that it's bad manners, presumptuous, and probably futile to offer unsolicited advice on how other people should spend their money. But let's do it anyway.

Industry should spend more money on research in universities, and the rich universities — 76 of them at last count with over \$1 billion in endowments — should dig deeper into their own resources to make up for the falloff in federal support of research. If a vibrant scientific research enterprise is as important as they frequently say it is, they should come to its assistance at a time when federal support is faltering.

After falsely crying wolf for many years, the wolf now actually is at the door and academic research is experiencing hard times. It remains far from penury, but it is hurting. Purchasing power of the National Institutes of Health — the biggest government dispenser of civilian research money — is down some 12 percent since 2004. After long neglect, the sciences have received a great deal of rhetorical support recently, but are still struggling to support previous levels of activity.

The National Science Foundation, which tracks government-wide research spending, recently reported that total spending by all federal research agencies was essentially flat in fiscal years 2006 and 2007. NSF says that's unprecedented in a data series that goes back to 1972. When the figures are in for FY 2008 and 2009, little if any change will be seen, and very likely the numbers will be downward rather than steady state.

Industry and universities are choral partners in praise of science. Corporate CEOs frequently tell Congress that academic science is an indispensable ingredient in American economic competitiveness and national security. Universities produce commercially valuable knowledge as well as trained specialists for industry, the CEOs observe. We couldn't get on without academic science, they assert from the witness table, though they understandably prefer Washington to pay the bills.

For universities, science is a source of glory, with the scale of research activity important for pumping up standings in the cherished *U.S. News & World Report* rankings. For major institutions, federal research grants, and accompanying payments for indirect costs, are the largest among their various streams of income. After decades of bountiful government support of research, universities have become habituated to money from Washington and are reserved in parting with their own to pay the costs of on-campus research. New hires are often given a couple of years to obtain outside research funding or they're on their way.

Industry and academe happily collaborate in commercializing on-campus research, but they remain junior participants in financing the discovery process. In FY 2007, colleges and universities spent \$49.4 billion on research and development. Of that amount, the federal government provided \$30.4 billion. Universities spent \$9.6 billion of their own money for R&D, whereas industry provided \$2.6 billion. The balance came from state and local governments, philanthropic foundations, gifts and other sources.

With corporate R&D spending totaling some \$220 billion, industry nearly outspends the federal government about 2:1 in support of R&D, but virtually all of that industrial money is spent in corporate laboratories. Furthermore, the small portion devoted to academic science has risen slowly in recent years, increasing by \$450 million since 2002. Institutional spending on research increased by \$2.4 billion between 2002 and 2007, but much of that money went into laboratory construction in misguided expectation of ever-increasing budgets for NIH.

Overall, academic R&D expenditures — from all sources — increased 3.5 percent between FY 2006 and 2007, which works out to a standstill in purchasing power. A few disciplines fared well. Bioengineering and biomedical engineering, trendy newcomers at NIH, grew by 12.8 percent, to \$537 million; oceanography, after long neglect, was up 18.6 percent, to \$996 million. Psychology was nicked, falling from \$875 million to \$863 million over the two years, a decline of 1.4 percent.

The presidential candidates pledge strong support for science, but the financial mess that awaits the winner is not likely to permit a financial rescue drive for academic research. Industry and the universities themselves have the resources to meet the need. What are they waiting for? ?