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# EDITORIAL

## Investing in the Future

Dramatic reductions in federal spending are now being considered in order to eliminate deficits by the year 2002. Nearly everything the government does is "on the table," so support for academic research is very much at risk.

One of the more compelling arguments for eliminating deficits is that in piling up national debt we are, in effect, asking future generations to pay for our current consumption and lack of political will. In fact, without interest payments on the debt, the federal government would actually be operating at a surplus right now. Ironically, however, we will be further compounding the harm to future generations if today's academic research is treated as current consumption—as opposed to the investment it actually is—and therefore is curtailed as part of deficit reduction.

Our children are going to face serious health, economic, and environmental problems. Surely no one can believe they will need less scientific and engineering knowledge to deal with such problems. Where would we be today were it not for knowledge created by others in the past? What would the economy be like without trained scientists and engineers working in industry? Imagine society today if there had not been the unplanned discoveries in the 1970s that now make it possible to test for HIV in our blood supply.

The United States has created a fantastic system for simultaneously producing new knowledge and new talent. It is a system that will be very easy to tear down, yet slow and difficult, if not impossible, to rebuild. The U.S. system is a partnership involving federal support of our educational and research assets to produce both new knowledge and highly skilled scientists and engineers. (And despite all the criticisms of our educational system, in the final analysis it still produces the best scientists and engineers in the world.) The knowledge and human resources produced in turn help make U.S. industry competitive through new products that create jobs and fuel the economy. In the past, politicians from both sides of the aisle understood that the benefits of academic research accrue to the society as a whole, making support of such research a proper function of the federal government.

Thus, the federal role in this partnership is an investment in the truest sense of the word. If we now reduce the federal investment in order to reduce current expenditures, it is our children who will have to live with the consequences.

Nevertheless, with nearly everything being cut, is it reasonable to ask that academic research be spared? And if scientists make the case, won't it appear excessively self-serving, even selfish? On the other hand, if one believes that preserving this system is critical to our future, who will make the case if not the scientific and engineering community?

One answer may be the industrial partners, who also have much at stake and yet a lot more credibility. The Industrial Research Institute (IRI) represents 262 major industrial firms that collectively invest $55 billion annually in R&D. Their sales total one-third of U.S. gross domestic product. In a recent position statement, IRI notes that "an essential ingredient for the future vitality of science and technology in the U.S. is a strong academic enterprise." The statement calls the educational role of university research a "top priority."

Moreover, 16 chief executives of some leading U.S. companies recently wrote to the House and Senate leadership urging that high priority be given to support for academic research. Their letter closes by saying: "Our message is simple. Our university system and its research programs play a central and critical role in advancing our state of knowledge. Without adequate federal support, university research efforts will quickly erode. American industry will then cease to have access to the basic technologies and well-educated scientists and engineers that have served American interests so well. We, therefore, respectfully request that you maintain support for a vibrant, forward-looking university-based research program."

These same leaders subsequently published a prominent advertisement in the *Washington Post* entitled "A Moment of Truth for America." Their advertisement makes an eloquent case for treating academic research as an investment in our future, and it was therefore republished in *Science* by the AAAS Board of Directors (26 May 1995, page 1139).

Industrial leaders have thus provided an excellent vehicle for making the case that scientific and engineering research is an investment in our future. This point needs to be repeated at every opportunity by individual scientists and engineers and by the societies that represent them.

**Richard S. Nicholson**