National Science Board Addresses the Need for Setting Research Funding Priorities

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A childhood lesson about sharing involves a piece of cake and two children. To ensure a fair outcome, one cuts and the other chooses. Scientists are looking for a more scientific method to share federal research dollars. The draft report of the National Science Board (NSB), entitled The Scientific Allocation of Scientific Resources, is the most recent of several such efforts. Reviewed at a May symposium at the National Science Foundation, the report follows a 1997 NSB working paper, Government Funding of Scientific Research, and a 1995 National Research Council report, Allocating Federal Funds for Science and Technology (more commonly known as the “Press Report”).

The 1997 working paper was motivated by the lack of a widely accepted way for the federal government to make priority decisions about allocating resources in and across scientific disciplines. At that time, the NSB urged coordination of federally financed research to avoid duplication of effort and the creation of research gaps. Saying that the budget as a whole should be adequate both to serve national priorities and to foster a world-class scientific and technical enterprise, NSB concluded that “it is essential that agreement be reached on which fields and which investment strategies hold the greatest promise for new knowledge that will contribute most effectively to better health, greater equity and social justice, improved living standards, a sustainable environment, a secure national defense, and to extending our understanding of nature.” To achieve this goal, NSB recommended developing guidelines for priority setting. The House Committee on Appropriations report accompanying the FY 1999 Appropriations Act expressed strong agreement with the 1997 NSB working paper and urged the NSB to follow through with such a study.

An Ad Hoc Committee on Strategic Science and Engineering Policy Issues appointed by NSB embarked upon an intensive two-year study that included a review of the literature on federal budget coordination and priority setting for science and engineering research, and talks with representatives of the White House Office of Management and Budget, the Office of Science and Technology Policy, other federal research agencies, congressional staff, science officials from eight other countries, experts on data and methodologies, and industry and academic spokesmen. This effort culminated in the NSB draft report, issued in March for comments.

A key recommendation is that the White House, federal departments and agencies, and the Congress cooperate in developing and supporting a more productive process for allocating and coordinating federal research funding. They are urged to give priority to investments in areas that advance important national goals, that are ready to benefit from greater investment, that address long-term needs and opportunities for federal missions and responsibilities, and that ensure world-class fundamental science and engineering capabilities across the frontiers of knowledge. The priority-setting process would start with an evaluation of the current federal portfolio for research in light of national goals, and it would draw on systematic, independent expert advice, studies of the costs and benefits of research investments, and analyses of available data. The report also calls for a strategy for addressing data needs to ensure commitment by departments, agencies, and programs to provide timely, accessible data for the evaluation of federal investments in research. To ensure international competitiveness, the allocation of US research resources and performance should be benchmarked against those of other countries.

At the May symposium, the report was closely examined by panels of administration and congressional staff. Steven Isakowitz, the Science and Space Programs branch chief at OMB, suggested that within-discipline priority setting is a useful exercise, but that across-discipline priority setting, though worthwhile, may not be possible. He added that priority-setting exercises often result in long lists devoid of the tough decisionmaking that policymakers need. Kathleen Peroff, the deputy associate director for national security at OMB, noted that priority setting can be at odds with the goal of a balanced science portfolio, which has been a rallying cry of the scientific community for years. She pointed out that advocating for across-the-board increases, a perennial strategy of the scientific community, actually discourages priority setting. Panelists agreed that the scientific community should have greater involvement in the process, but Scott Giles, deputy chief of staff for the House Science Committee, also cautioned that community-based advocacy doesn’t work, especially when budgets are tight. He noted that while there could be some improvements to the process, criteria are key to priority setting. He echoed Peroff’s view that the unintended consequence of priority setting is often an imbalance, citing the disproportionate increases afforded to biomedical research over the past several years.

No matter how you slice it, former Speaker of the House and keynote speaker Newt Gingrich said, what is needed is a bigger piece of cake. Gingrich asserted that the failure to invest adequately in science was the second greatest threat to our national security after weapons of mass destruction, and that we are on the edge of a new explosion of knowledge over the next 20 years that will at least equal the gains made over the entire 20th century. He urged scientists to communicate the importance of their research to policymakers to ensure that the resources needed for the science that is required to meet societal needs are available.

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