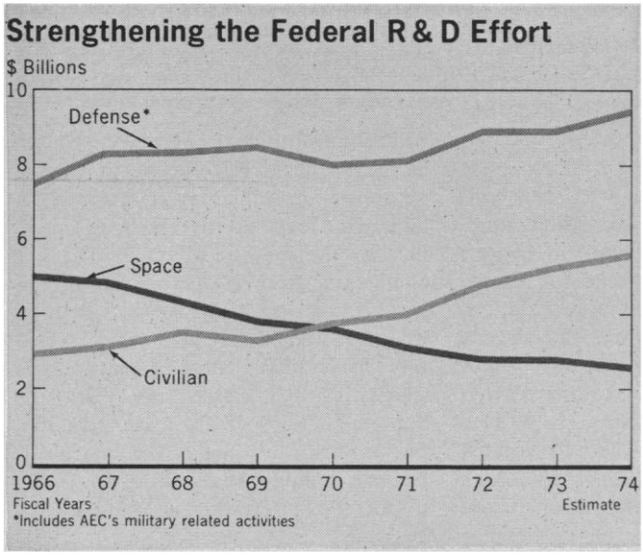
Budget Background: Where Science Stands and Why

The recession in science which began in the middle 1960's was generally attributed to pressures on the budget from costs of the Vietnam war and Great Society programs. It was hopefully assumed in the scientific community that the setback was temporary, merely a short-term reversal of the trends established in the early 1960's. President Nixon's budget for fiscal year 1974 released on 29 January is based on the assumption that U.S. military involvement in Vietnam is over. The budget makers also seem fairly optimistic that inflation has been restrained and employment is expanding. But the growth curve for science retains its horizontal ways.

The immediate explanation is clear enough. The Administration is determined to hold the line on federal expenditures to keep inflationary pressures in hand and developments within the budget in the past decade have made R & D particularly vulnerable to budget-cutting activities. In other sectors of the budget, particularly in programs which commit the government to payments to individuals—social security, public assistance, veterans benefits, medical care for the aged and indigent, for example—limits on spending are virtually impossible to set. More than $200 billion in the budget is estimated to be in this category of "uncontrollable" expenditures and the science budget, on the other hand, is eminently controllable.

In retrospect, the remarkable burst of growth in the science budget, beginning in the early 1960's, was produced by a very unusual combination of circumstances. The figures testify to the rapidity of expansion. In 1960 federal R & D expenditures amounted to about $7.7 billion with some $6.6 billion spent on military R & D. In 1963 the science budget was $12.4 billion ($8.6 billion military), and by 1966 the total was $15.4 billion ($6.8 military). The fiscal 1974 budget proposes an R & D budget of $16.7 billion with expenditures of $8.3 billion in the military sector. The first half of the 1960's, obviously, witnessed a boom in science spending with civilian R & D growing at a much faster rate than military R & D. By the later 1960's the rate of growth had flattened, the proportion of military R & D began to increase, and inflation had taken hold.

The boom in science in the first half of the decade was made possible not only by policy decisions but by unusually favorable economic circumstances. The end of the 1958–1961 recession began a long period of uninterrupted expansion of the economy during which productivity rose steadily and prices remained relatively stable. Federal revenues rose rapidly and some economists worried about "fiscal lag"—the retarding effect on the economy of the government's lack of ways to keep federal expenditures up with revenues. Science was a logical beneficiary in this situation not only because R & D was looked upon as fitting in with the philosophy of the "investment" budgets put forward by President Kennedy, but also because science was politically palatable. Major spending on federal programs of aid to education and medical care to the aged, for example, encountered impassable opposition in Congress at that period.



Because the scientific enterprise was starting from a relatively small financing base, the percentage increases in funding were very large. The expansion of the space program—the NASA budget rose from under $2 billion in 1962 to about $5 billion in 1966—of course provided a major fillip. The 1960's was a period of unexampled expansion in higher education and there were jobs in universities and colleges as well as in industry for the rising tide of graduates of scientific manpower programs.

By the middle 1960's the buildup in Vietnam and the mounting cost of Great Society social and welfare programs had taken the discretionary slack out of the budget. President Johnson's fiscal 1967 budget submitted in January 1966 was the first budget in a decade not to carry a request for an increase in total spending for R & D. And from then on inflation took a mounting toll.

What are the post-Vietnam prospects for science? It is difficult to see the implications for science in the President's efforts to implement his concept of a "New Federalism." The budget indicates he will seek to strengthen state and local governments by devolving responsibility for community programs currently administered by the federal government and by shifting federal funds directly to the operating governments through new "revenue sharing" programs. Most R & D programs presumably are "national" programs and would continue to be administered from Washington. Congress, however, is expected to take a protective stance toward many of the programs in question and the debate over revenue sharing is likely to become a major skirmish in the battle of the budget.

A better clue to the outlook for science is probably the evaporation of the so-called "peace dividend" which was anticipated at the end of the Vietnam war. The continuation of military spending at a high level and the rigors of the Administration's countercyclical budget, which incidentally has been projected into 1975, seem to leave little room for expansion of the science budget. A group of independent economists in a Brookings Institution study, *Setting National Priorities: The 1973 Budget,* see this inelasticity built into the budget lasting into the next decade unless big tax increases are voted or a major reordering of priorities occurs.

This sort of an economic interpretation of the fortunes of R & D in the federal budget can be carried too far. Sputnik, for example, obviously helped give impetus to R & D in the late 1950's and early 1960's. But it is clear that science faces tough, long-term competition for funds in the budget. Looking back, the early 1960's were a mini–golden age for science, cut short by long-term trends in the budget.

—JOHN WALSH