Nixon's New Economic Policy: Hints of a Resurgence for R&D

A little-noticed paragraph in the statement on new economic policy that President Nixon announced last week contained the promise of forthcoming tax incentives to encourage industrial research and development. These incentives—yet to be worked out in detail—represent the first installment of what may be a significant effort by the Administration to invigorate the national R & D enterprise. Although industry is likely to be the primary beneficiary, academic science would also get a share of the spoils.

White House staff expect the policy for a new push on R & D to be formulated in time to influence next January's budget message, but they stress that planning is still in the formative stage. "There is bubbling up the possibility of a significant Administration commitment in this area," a senior official in the Office of Management and Budget (OMB), told *Science* last week. "There is no doubt that R & D has a positive effect on economic growth—the problem is to figure out the financial mechanisms for increasing R & D. A decision may be made between now and the time of the State of the Union message [in January], but things at present are in a pretty amorphous state," the official says. According to Edward E. David, the President's science adviser and director of the Office of Science and Technology (OST), the President's reference last week to tax incentives for R & D was "prophetic," but "We don't have a program as yet that we could make public."

The new outlook on R & D is being prompted by a variety of concerns felt by different interest groups within the Administration. Basic to the debate now in progress is the consensus among economists that R & D exerts a strong and positive influence on national productivity and economic growth. But there is less agreement on how the federal government should act to stimulate R & D and what the proper extent of the stimulation should be. The debate has been stalled on these points for several years—during which R & D expenditures have accounted for a steadily declining share of the national budget—but the present economic crisis has prompted a demand for action from many different quarters.

Concerns about the trade balance (in which technology-intensive products play an important role), about slow economic growth and a decelerating rate of increase in productivity, and about the mass unemployment of scientists and engineers have all focused on the need to enhance R & D. Discussions on how this may be done are now under way at the higher levels of the Administration. However, larger issues are also involved, such as the search for a new national science policy and even such basic issues of economic policy as whether the country should continue to be a nation of producers or should evolve toward being a service economy that invests abroad and lets countries with low labor costs produce its goods.

Debate between Agencies

The lineup on the debate—though this characterization injures the subtleties of what appears to be a nonpartisan discussion—seems to be roughly as follows. The Commerce Department, with the aid of allies in the Council of Economic Advisers and the Domestic Council, is pressing for federal subsidy of industrial R & D in the form of tax breaks, direct loans, and repeal of antitrust legislation that forbids cooperative research. These pressures are being resisted by the Treasury, which is opposed on principle to using the tax system for any purpose other than raising revenue. In between, the OMB is holding the balance. Although the OMB favors R & D in a general sense, it is professionally skeptical of the specific methods proposed to raise the R & D effort, particularly the demand for government subsidies; the OMB's institutional position is that government dollars drive out other dollars. The OST under David seems to be playing a somewhat ambivalent role in the debate. Instead of siding with the Commerce Department in advocating more federal support for R & D, as previous science advisers might have done, David seems to have cast the OST's lot in with the OMB as a critical auditor of other people's proposals. Both the OMB and OST seem concerned that basic research, not just industrial research, should benefit at least to some extent from any forthcoming bonanza.

One of the first straws to indicate a new wind blowing for R & D was the testimony delivered last month to the House Subcommittee on Science, Research and Development. Murray L. Weidenbaum, assistant secretary of the treasury for economic policy, told the subcommittee that the nation had "now become too niggardly" in its overall support of R & D and that he favored the use of the tax structure to encourage industrial investment in this area. Weidenbaum's testimony differed strikingly in tone from a speech he gave last October to the American Institute of Aeronautics and Astronautics, in which he derided the "soft, theological terms" used by natural scientists to justify their claim on the taxpayers' money (*Science*, 30 October 1970).

Another Administration position presented at the subcommittee's hearings was that of Commerce Department Secretary Maurice H. Stans. Stans warned that in 1961 the U.S. trade surplus with the rest of the world might disappear, leading to the first deficit since 1893 (figures released the day after his testimony revealed a trade deficit of $373 million for the first half of the year). Stans held to blame for the deficit the "decline in our technological lead." The costs of breaking new ground in some high technology areas are too formidable for private industry to contemplate; "If we are to maintain our advantages in this area," Stans told the subcommittee, "we must first of all accept the idea that it is becoming a proper sphere for government action." Stans later furnished the subcommittee with a tentative list of 50 "technological opportunities"—mostly in energy, construction, mining, and pollution control—in which he considered government subsidy of the necessary R & D appropriate.

The testimony of Stans and Weidenbaum represents two public inputs into the R & D debate. A less public

input came from an interagency group studying possible tax incentives for R & D. Herbert Stein, a member of the Council of Economic Advisers and chairman of the group, says it concluded R & D had been "underdone" and made a number of suggestions to David and to Paul W. McCracken, chairman of the Council of Economic Advisers.

Another contribution to the debate is being prepared by a heavyweight panel of the President's Science Advisory Committee (PSAC), chaired by Patrick E. Haggerty of Texas Instruments. Set to study science and technology policy, the panel in its report recognizes the general relationship between R & D and productivity, although, according to one member, "the tone of our thinking was not sympathetic to the government throwing its weight about in a random and half-baked way." In addition to its main report, the PSAC panel will also present the report of a subcommittee on productivity chaired by Arthur M. Bueche, vice president for research of General Electric. The subcommittee has charted a range of options the government might take to stimulate productivity. Very similar ground will be covered by the National Commission on Productivity, which was set up last June and is due to convene a special conference next month. The commission has a special working group detailed to study the relationship to productivity of R & D and education.

Other, less formalized inputs to the debate are coming from the Domestic Council, which is particularly concerned with unemployment among scientists and engineers, and the Council on International Foreign Policy. The debate is being coordinated, though in an apparently informal way, by David and by Donald Rice, an assistant director of OMB.

Doubts in the OMB

Within the OMB there seems to be widespread agreement that the national R & D effort should be intensified but considerable doubt as to how and to what extent this should be done. "Everyone agrees that the economy is in trouble and that R & D could make a contribution," says a senior OMB official. "But does R & D contribute more than would something else, such as tax incentives for investments? Another difficulty is that technology can now be transferred very rapidly. If someone here invents a new process, in 2 years' time it will be in Taiwan, and they will beat us because of their lower wages."

A different issue is the extent to which it is proper for the federal government to intervene in the marketplace. "The federal government has influenced economic growth all along—the only question is whether we should do it directly or indirectly," the same OMB official says. A contrary view is held by William A. Niskanen, assistant director of the OMB for evaluation. In an in-house memorandum that is said to have caused a certain amount of furor in government circles, Niskanen reportedly argued that the government should support basic science on the same terms as it supports the arts and humanities and that research in applied science should be left entirely to market forces.

Niskanen told *Science* he could not comment on the memorandum because its subject matter is still under discussion with the OST. "That memo represented an attempt on the part of the OMB and OST to come up with an agreed set of criteria for evaluating how and where the federal government should intervene in support of R & D," Niskanen said. "At first there was considerable disagreement between us and OST but there now seems to be some convergence."

Another agency with which the OMB has failed to see eye to eye is the Department of Commerce. The arguments in favor of federal subsidies for R & D which Secretary Stans put forward last month—and in similar form to the Joint Economic Committee last February—are based largely on figures prepared by Michael T. Boretsky, a senior policy analyst in the Commerce Department (*Science*, 2 April 1971). Boretsky has underlined the importance of high technology in U.S. trade by distinguishing four categories of traded goods. In two of these, raw materials and low technology products such as textiles, the United States has regularly experienced trade deficits, while in a third category, agriculture, there has been a rough balance. The trade deficits in these three categories have traditionally been more than offset by a large surplus in the amount of high technology goods the U.S. trades with the rest of the world. But since the mid-1960's the surplus in the high technology category has shown a leveling off—at about the $10-billion mark—which Boretsky finds to be cause for serious concern.

Boretsky's analysis of the trade balance and the importance of high technology products has several influential advocates besides Stans. Recently it has been referred to by the Secretary of the Treasury John B. Connally and Peter G. Peterson, chairman of the Council on International Foreign Policy. But

Agencies Fashion Plan for Jobless

A large new program which will create jobs for the nation's out-of-work scientists and engineers is being put together by the Administration. All domestic agencies have reportedly been asked to dust off any projects on their books that would employ technical people. A list of such projects, targeted to be worth about $1 billion, is to be presented early next month to the President's science adviser Edward E. David.

A major impetus to the project is said to be Chairman of the Domestic Council John D. Ehrlichman's concern that a mass of jobless scientists would be of little help to the Republican cause at the polls next November. But the word that has gone down to the agencies is that the program is not a make-work, WPA-type venture. Officially, at least, the ideology behind the program is to contribute to national productivity by taking up the many opportunities for applied research that have so far lain neglected. "We are trying to pull together some things we have had on the back burner," says one government official involved in the program, "but the primary objective is not to employ out-of-work scientists but to do some things we should have done years ago." The program is still very much under wraps. Officials are reluctant to do more than confirm its existence, and David, who is coordinating it, says only that there are "many possibilities which are being thought of—we don't have anything which we are in a position to announce."—N.W.

the Stans-Boretsky thesis does not go down well in the OMB, where there is a feeling that it has been oversold. "The Commerce people have been riding the Boretsky trail for a long time and they've overridden it," says a senior OMB official. According to Niskanen, "Boretsky's is a very weak argument—the relationship between R & D and trade is more subtle than he makes out. There is no reason to believe that R & D is dominant among the many issues affecting trade problems."

The OMB also disputes Stans's thesis that some projects involve R & D costs that are too high for any single industry to bear. "I am convinced there exist very few activities that the private sector cannot handle. It's a mistake for us to address Stans's list of 50 'technological opportunities,' since it is not for the government to assess which activities have the highest payoff; and we are not likely to give a good answer if we were to try," one OMB official says.

Niskanen's strong reservations on the propriety of federal intervention in the marketplace are in sharp conflict with the views of the Commerce Department and those that might be expected from the OST. In fact, no such conflict seems to have arisen with the OST because of the disinterested position that David has adopted. "Ed David is a refreshing guy to work with because he is less obviously a spokesman for a particular constituency than has been the case with OST in the past," Niskanen says. "The scientific community may not forgive him for that, but his position will help them in the long run because, for one thing, he has an audience and is much more likely to influence basic decisions." The OST, Niskanen points out, has no functional responsibilities and must live by its wits; "The easiest thing to do with these advisory groups is to ignore them, especially if their advice is predictable or special pleading. I have the greatest respect for David's outlook and the way he runs his office."

Niskanen's evaluation of David's office emphasizes a perceptible shift in the role of the President's science adviser. David is probably the first holder of the post who has had to choose which of two masters to serve, the President or the scientific community. Previous science advisers have been able to serve both without contradiction because, during the halcyon days of regularly expanding research budgets, the advisers' official duties did not interfere with their unofficial role of science's friend in court. The cutbacks of the last few years imposed a choice on Lee DuBridge, David's predecessor, and, to the extent that DuBridge found himself excluded from the inner councils of the Nixon Administration, he seems to have overplayed his unofficial role of ambassador for science. David, right from the start, has made clear that he is a member of the Nixon team. The consequence of this decision is that David has had to part company with the scientific community on certain issues, but in return has at least won back the audience that DuBridge was denied.

David is reputed to have had another ally in the person of James R. Schlesinger, the former OMB deputy director who last week replaced Glenn T. Seaborg as chairman of the Atomic Energy Commission. A former OMB official recalls that Schlesinger came to the OMB inclined to question federal support of R & D, but left as one of the strongest advocates. But a former colleague says that this is a caricature of his position and that Schlesinger was never hostile to R & D as such, only to particular projects in the defense area.

Mixed Strategy For R & D

Assuming a decision is made to upgrade federal support of R & D, policymakers in the OMB and OST have a variety of support mechanisms to choose from. Tax incentives for R & D, already mentioned by President Nixon, have long been advocated by partisans of government R & D but until now have been steadfastly resisted by the Treasury Department. The Treasury's standard position is that the tax system is a device for raising money, not rearranging social priorities. "The people in favor of tax incentives for R & D couldn't agree on what form they ought to take, and the Treasury has just let them wear each other down," says one government economist. Tax incentives also tend to be unselective.

To take care of this negative aspect, the proposal has been made for a government agency which would award grants to deserving companies, somewhat like an industrial counterpart of the National Science Foundation. The trouble with the proposed agency is that it would have to have access to proprietary information; there would also be difficulties in establishing the equivalent of peer review groups to assess grant applications.

A third possible mechanism is for the government to work through cooperative research associations formed by firms in a given industry, with the government contributing funds on a pro rata basis.

Most parties to the R & D debate advocate that because of the uncertainties involved, it would be better to rely on a combination of methods rather than a single mechanism. "There is a fairly general agreement that a mixed strategy is appropriate," David says. But although ways of aiding industrial R & D have been at the forefront of discussion, the present drift of Administration thinking seems to be toward extending the uplift to basic science as well, although in a selective manner. According to David, "the invigoration of the whole R & D enterprise is the object." "The outcome of the present policy debate is likely to strengthen the relationship between the academic community and the industrial appliers of research," Niskanen told *Science*; "It may strengthen the industry role in allocating R & D resources as well as the role of university scientists in undertaking the research—but the particular mechanisms are not yet agreed upon."

Just how much invigoration is left over for academic science may depend on whether a short- or long-term approach results from the present policy debate. "If you are going for the near term, you will give to industry, but for the long term you have to build a reservoir of knowledge," says a senior OMB official. But some observers read the signs in President Nixon's new economic policy as indicating a concern with short-term expedients. "The emphasis on trade is politically palatable because everyone is fired up about Japanese imports and the monetary crisis," an economist in the National Science Foundation told *Science*. "But of all the good reasons for doing more R & D, the least tenable is the balance-of-trade type argument. It would be unfortunate if we introduced tax incentives for R & D and removed them in a few years when these present problems have gone away—you can't turn R & D on and off like that."

In the OMB, there is greater optimism that the long-term view will prevail. "There may be a bit of a halo effect," a senior OMB official said last week. "Just because some short-term proposals have been announced, that doesn't mean that everything is short-term."—NICHOLAS WADE