4 April 1975, Volume 188, Number 4183

SCIENCE

Muddling Through: Government and Technology

Not everyone is sure that technology generates greater social benefits than costs. What is quite clear, however, is that a sick national economy is not going to create needed jobs, nor improve productivity so that we can afford to help others, if its technological capacities are not up to it.

Government tends to imagine that a mystery called the market system defines the level and quality of technological enterprise. It is true that private decision-makers balance opportunities against corporate risks in estimating returns from innovation. But the environment of private decisions is conditioned heavily by government's attitudes and behavior. There is scant evidence that the federal government has the policy machinery to guide its actions as they affect the environment for innovation.

For a time it looked as if government had caught on to the need for explicit public policies toward technological vitality. That was in 1972, when Michael Boretsky of the Department of Commerce showed that the United States was fast losing its lead in high technology exports. A presidential message went to Congress on science and technology, and whatever defects it had were redeemed by flashes of comprehension as to the need to encourage innovation. To test incentives for risk-taking, the National Science Foundation and the National Bureau of Standards were assigned new responsibilities. Thereupon, Carey's law became operative: that the half-life of a federal experimental program is about two and a half budget cycles. The NSF's program has been practically shelved. The Experimental Incentives Program in the Bureau of Standards has launched promising partnership experiments with regulatory and procurement agencies, yet its future is uncertain. So it goes, while the economic indicators fall and factions quarrel over the mix of fiscal antibodies.

The energy predicament has dramatized the fragility of a technology-dependent economy. A materials crisis would teach us an even more emphatic lesson. The success of our Free World partners in invading our domestic markets, thanks to our export of technological and managerial know-how, has begun to make us thoughtful. But when we hunt for a public policy framework within which technological vitality can be regenerated, we cannot find it. This is one place where presidential staff work in science and technology can stand strengthening.

Government may imagine that it is neutral toward the rate and quality of technological risk-taking, but it is not. The regulatory system alone is pervasive and here to stay, but regulatory policies aimed at the public interest rarely consider impacts on innovation. Standards-setting activities, important as they are, need not force distortions on technological compliance. Changes in tax treatment of industrial research and development, if approached narrowly, can choke off outlays for innovation and trigger even more exportation of R & D and know-how.

Government is not against technological innovation. But the habit of muddling through leaves American technology at increasing risk. Government should have policy machinery to align its industrial growth policies with its regulatory, taxing, R & D, and procurement policies so that discontinuities are refereed. With this goes a need for better governmental research on the dynamics and performance of the technological enterprise in the United States, aimed toward a baseline for good policy analysis.

We have found out that compulsive technological drive is not the right answer. But we need also to know whether unintended governmental constraints are inducing adverse choices in industrial risk analysis at the expense of innovation. Now that we are in deep economic trouble, the question is less academic than it might have seemed when the nation's economy had its seasons in the sun.—WILLIAM D. CAREY