

Economic Scene

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User-Friendly Technical Fixes

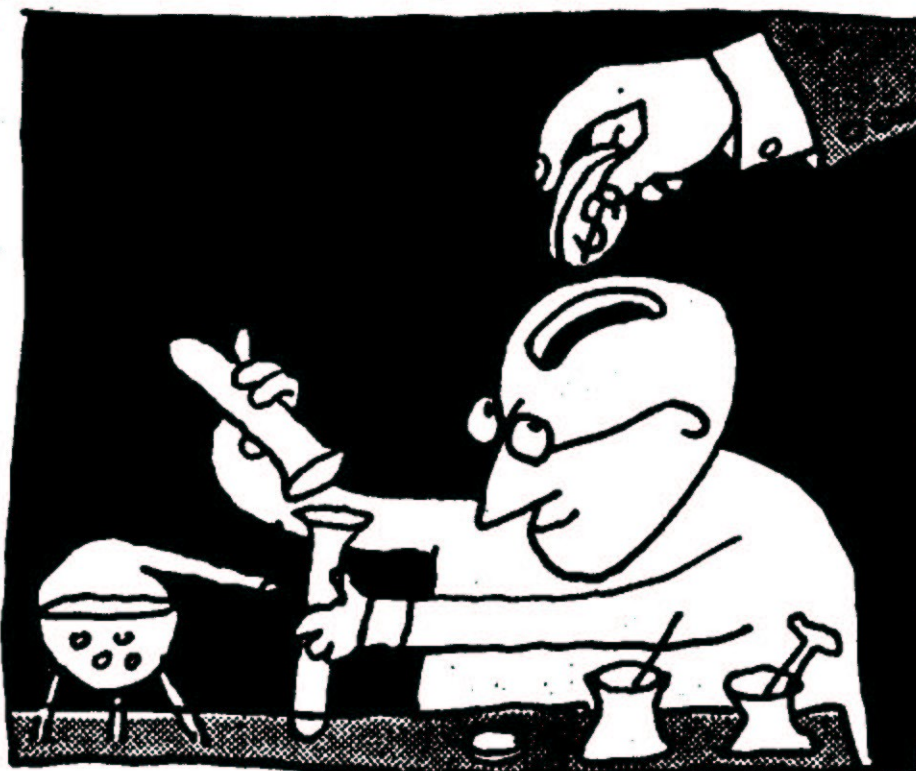
WITH prices stable, the trade deficit improving and the Reagan boom perking into its sixth year, the performance of the American economy is confounding the doomsayers. Well, not quite all the doomsayers. Productivity growth, the most important measure of the economy's ability to sustain prosperity in the long run, has been drifting south for two decades. Unless the trend is soon reversed, it will be felt in stagnating incomes and increasingly bitter divisions over Government priorities.

Actually, the latest figures show that output per hour of work rose a cheery 3.6 percent in the first quarter. But few analysts are in a mood to break out the Taittinger on the strength of one good quarter after years of results that hardly merited a toast in Calvin Cooler. Annual gains in productivity have averaged just 1.4 percent since 1981, down from 2.7 percent between 1947 and 1968.

Why the leveling off and why now? Snippets of evidence support every theory from the high cost of pollution abatement to deterioration in workers' skills. But most studies suggest that a slowdown in technological change explains much of the decline.

Identifying the culprit as technology only answers one riddle with another. Scientific advance hardly seems to be slowing. Why isn't this rapid, even accelerating, progress showing up in productivity gains?

Martin Neil Bailey and Alok K. Chakrabarti, authors of the Brookings Institution's new study, "Innovation and the Productivity Crisis," provide the most satisfying answer to date. The key problem, they argue, lies in the increasing difficulty in adapting new techniques to the workplace. Their conclusion, based on a series of industry studies, offers a boost to the unfashionable view that more



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Government intervention rather than less is needed to keep the growth machine moving.

The obvious link between science and productivity is research and development. Industry-financed R.&D. grew at about 6 percent annually, but the rate of growth tailed off in the 1970's. Could that explain the crisis?

Not really. Output growth slowed almost as much as R.&D. spending during the 1970's, keeping the ratio between the two nearly constant. At most, the failure of corporations to maintain the rapid growth in research outlays accounted for 10 to 20 percent of the decline in productivity growth. The more important slippage, the Brookings analysts maintain, came elsewhere.

America has long been the leader in computer technology. But the United States machine tool industry fell far behind European and Japanese rivals in computerization. America is ahead in developing the software for office automation, but the technology has yet to make a dent in white-collar productivity. Similarly, commanding leads in materials science, electricity generation and bio-

engineering have been left unexploited.

The temptation is to pin the blame on all those newly minted M.B.A.'s who know everything there is to know about Eurodollar swaps, but cannot tell the difference between a RAM and a ROM. Messrs. Bailey and Chakrabarti do not see it that way. They believe managers are slower to innovate because new technologies are inherently riskier to put into use than the less exotic advances of the 1950's and 1960's.

How to convince them to press on? Economic advisers to both Michael Dukakis and George Bush favor renewal of the expiring tax credit for private research. That would certainly make sense since all the evidence suggests that the social return to R.&D. is very high. But it is a holding action at best, and one that fails to address the key issue of smoothing the bumpy path from laboratory to production line. Here, the Brookings researchers' fixes are bound to be controversial.

Everyone sees the value of publicly financed basic research and private development of end-user technology. The Brookings analysts focus on "middle-ground" research. Such projects typically have immediate commercial potential, they argue, but the results are so easily appropriable by competitors that corporations have little incentive to pursue them. To get the job done, they say, the Government must sweeten the effort with cash.

The catch is that someone must pick the potential winners, and Washington's record in applied research is far from encouraging. Multibillion-dollar investments in synthetic fuels and nuclear breeder technology were wasted. And the Sematech consortium's research in manufacturing technology for memory chips has already been dismissed by some critics as a boondoggle.

The best case for risking the money is that the stakes are unimaginably high. An increase in productivity growth of just one-tenth of 1 percent would add \$50 billion to G.N.P. in a decade. And with hundreds of billions of dollars at stake, even long shots can look interesting.