Small Business Bills Upset the Universities

Legislation to channel federal R & D funds to small businesses could divert support from basic research

Small business firms in the United States account for a disproportionately large share of major technological innovations, their growth rates generally outstrip those of big corporations, and they have generated most of the new jobs in the past decade. Yet, in spite of these attributes, small businesses receive only a tiny fraction—less than 4 percent, according to most estimates—of the $40 billion that the federal government now spends each year on R & D. Legislation seeking to channel more federal research dollars into small companies is, however, moving swiftly through Congress and it could become law in the next few weeks.

Although one university president has described the legislation as "a daylight raid on the U.S. Treasury," few people have opposed the notion that small businesses deserve more federal research support. But the bills now pending before the House and Senate have got university administrators, academic scientists, and government research officials distinctly worried. The reason is simple: they believe that small businesses will benefit at the expense of academic research at a time when basic science budgets are already under severe pressure.

The chief objection to the legislation is that it would require most federal agencies to set aside a minimum fraction of their R & D budgets to fund work by small businesses. Critics charge that this money will be drawn predominantly from funds that would otherwise have gone to the universities and that it will result in a transfer of support from basic to applied research. It has also been argued that if Congress sets rigid quotas for funding small business research, it will bypass the usual budget process and reduce the flexibility of agencies to decide how their research money can best be spent.

These concerns have so far made little impression on congressional support for the legislation. A bill introduced by freshman senator Warren Rudman (R–N.H.) has picked up 86 cosponsors, has been approved unanimously by the Senate Committee on Small Business, and is expected to clear the Senate by the end of November. Similar legislation, which would provide even more support for small business than Rudman's bill, was approved unanimously by the House Small Business Committee late last month and it, too, has attracted close to 100 cosponsors.

Equally important, the White House, which had opposed the idea of setting quotas for support of small business research, now backs Rudman's bill. President Reagan personally offered his support in a letter to Rudman on 6 October. "It was strictly a political decision," one White House official told *Science*. Rudman had supported the Administration's economic program, and his vote for the sale of AWACS aircraft to Saudi Arabia was being sought, the official noted.

With this momentum and high-level backing, the legislation seems certain to find its way into law. But critics of the bills may yet get their day in court. The House Committee on Science and Technology, which has jurisdiction over the National Science Foundation (NSF) and NASA, and the House Committee on Energy and Commerce, which has the National Institutes of Health (NIH) under its purview, have asked for a chance to consider the bill before it reaches the House floor. Both committees are expected to be sympathetic to the concerns raised by the universities.

Rudman's bill, in short, would require agencies that have R & D budgets in excess of $100 million a year to establish so-called Small Business Innovation Research (SBIR) programs. These must receive at least 1 percent of the funds that the agency spends on extramural R & D; grants and contracts to small businesses that result from other programs would not be counted toward the 1 percent quota.

The SBIR programs, which are modeled on a program that NSF has been running since 1977, would provide funds for small business R & D in three phases. First, an agency would provide up to $50,000 for a preliminary feasibility study. If that looks promising, an additional grant of $100,000 to $500,000 would be made to carry out R & D designed to take the product or process to the commercialization stage. And finally, actual production would be financed by private capital or by a federal production contract if the product is intended for government use.

The central idea behind the SBIR programs is that small businesses often encounter difficulty in raising money for preliminary R & D work. The venture-capital markets, which have recently

Senator Warren Rudman

been slopping with record amounts of cash, generally tend to support later stages of product development. Thus, Rudman argues, "the federal government should take some role in encouraging small high-technology companies to get seed money . . . if we're going to develop ideas addressing specific objectives."

The House bill, which was introduced by Representative John J. LaFalce (D–N.Y.), takes a similar approach to Rudman's bill, but it contains some important differences. In particular, it would require research agencies to devote 3 percent of their total R & D budgets to SBIR programs—unlike the Senate bill, the quota does not apply only to extramural R & D funds. This means that the SBIR programs would receive a total of at least $1.2 billion a year if LaFalce's bill prevails.

But even 3 percent of an agency's R & D budget is still a small fraction, so why is there so much opposition? Critics

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charge that the impact will be greater than the figures indicate. Consider, for example, the impact on NIH.

NIH currently funds about $3.1 billion worth of R & D. Of this, some $470 million supports intramural research and about $2.6 billion goes to outside grants and contracts. Thus, under Rudman's bill the SBIR program in NIH would get $26 million a year (1 percent of the extramural funds) and under LaFalce's bill it would receive about $90 million (3 percent of the total funds). But some two-thirds of NIH's budget is already committed to multi-year programs, so the SBIR funds would come predominantly from money that would otherwise be devoted to the support of new projects. A similar situation prevails in NASA, where major projects account for most of the agency's budget. "NASA can't cut back on the shuttle, so it will take (funds for SBIR programs) out of basic research," argues Newton Cattell of the Association of American Universities.

Cattell and other critics of the legislation all say that they support the objective of providing federal seed money to small businesses, but they object to the establishment of rigid quotas—Cattell refers to this as "a tax on research." Ronald Lamont-Havers, head of research policy at Massachusetts General Hospital, argued in congressional testimony last June, for example, that "to set aside a specific pool of funds exclusively for applicants from small business would suggest a priori that these scientists could not otherwise compete successfully. . . . I resent the diversion of funds from high to low quality projects, an inevitable consequence of this set-aside proposal."

Small businesses have received a paltry share of federal R & D funds.

During hearings on the bills by both House and Senate small business committees, spokesmen from federal research agencies and from academic organizations argued for more flexibility, suggesting that the SBIR programs should compete for agency funds in the usual budget process, just like any other program. The bills' sponsors have argued, however, that small businesses have so far received such a paltry share of federal R & D funds that a mandatory quota system is needed to force a change.

Concerns over the bills have so far been submerged in the congressional enthusiasm to support small business—an issue that traditionally gets a sympathetic reception on Capitol Hill. But if the House committees on science and technology and on energy and commerce get a chance to consider the legislation before it reaches the House floor, the debate should receive a good deal more public visibility.—COLIN NORMAN

United States Objects to Soviet Gas Deal

Germany and France brush aside America's warnings and forge ahead with plans to finance a Siberian pipeline

There could hardly be clearer evidence of the Soviets' growing involvement in Europe than the deal to be concluded this month between the Soviet Union and Western Europe to build a 3000-mile natural gas pipeline from western Siberia to West Germany. It will be four times the length of the Alaskan oil pipeline, making it the largest project of its kind.

As European leaders are poised to endorse the agreement, the Reagan Administration and some members of Congress have begun to speak out anxiously about its strategic importance. Unlike military scenarios, which are based on the hypothetical use of force during a future war, the Soviet gas deal represents a concrete delineation of East-West relations. Western Europe in this case plays the role of the dependent. The realization that it is too late to alter this has prompted a new debate within the Administration on how to handle strategic trade issues in the future.

Soviet President Leonid Brezhnev is expected to arrive in Bonn, West Germany, on 22 November. By then the price negotiations should be finished and the pipeline agreement ready for signing. West Germany is expected to close a deal for which it has been the chief negotiator over the last 3 years, a complicated trade that will provide Western financing, high-quality steel pipe, and sophisticated compressors in return for long-term gas supplies from the huge Urengoi field in western Siberia. (The Soviet Union is the world's largest oil producer, holds one-third of the world's gas reserves, and has just become the world's largest gas exporter.) The pipe from the Urengoi field will provide gas for half a dozen European countries and will make France, Germany, and Italy dependent on the Soviet Union for 30 percent of the gas they use.

During the most recent public review of the Siberian pipeline deal, held on 12 November before the Senate Banking Committee, the two senators present vied to come up with the best cliché to describe the predicament confronting the Reagan Administration. Chairman Jake Garn (R–Utah) said that even at this late hour, the United States should try to dissuade the Europeans from signing the agreement. It may be like closing the barn door after the horse has escaped, Garn said, "but we may be able to run down the lane and catch up with that horse." John Heinz (R–Pa.) said he thought it was too late to intervene and that the U.S. government had already "shot itself in the foot." This was not surprising in itself, Heinz said. "What amazes me is the speed with which we can reload and shoot ourselves again," he added. Both senators said that the United States should have made an effort earlier to provide other sources of energy for the European countries interested in buying Soviet gas.

Despite the clear disagreement of an Administration witness, Garn said it might be a good idea to create an office of strategic trade within the Commerce Department. It would act as a central

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