Now that we are firmly into 2005, the 1980 Bayh-Dole Act (hereafter, B-D) will soon graduate from adolescence to adulthood, having reached the quarter-century mark. This legislation has had a profound impact on science in the United States and, indirectly, in other nations as well. But the ratio of its benefits to its costs depends on one’s view of what’s important. To those who had worried about technology transfer, it’s a huge success. To others, who expressed concern about university/corporate relations or mourn the enclosure of the scientific “knowledge commons,” it looks more like a bad deal.

To review: Under B-D, the U.S. government renounced intellectual property claims on research supported by federal funds in universities or other nongovernment institutions. The argument in its favor went this way: Because few patents were being issued on government-funded work, scientists and their institutions needed an incentive to patent their discoveries and then license the new technology for development into useful products. In response to B-D (and some favorable changes in the capital gains tax laws), universities grew offices of technology licensing and faculty members took a new interest in getting their discoveries patented. Venture capitalists, and venture funds in the universities’ own endowment portfolios, were eager to help in the conversion of professor to entrepreneur, and pretty soon campus districts were peppered with commercial startups. For university administrators, this was a brand new problem. Should we co-invest with faculty members, linking endowment return to the work of those professors? Should graduate students be given offshore employment in their mentors’ startups? Should the university be landlord, philanthropic beneficiary, and exclusive licensor to these entities all at once? We generally answered such questions in the negative in the 1980s, despite some intriguing offers.

Hard questions soon emerged for others. When professors sent cell lines or reagents to other scientists, they now had to accompany them with a Material Transfer Agreement containing complex restrictions against further distribution. Has that custom evolved from merely annoying to mischievous? Has the developing thicket of patents and licenses created what Eisenberg and Heller called a “knowledge anti-commons,” stifling communication among scientists? When those who make use of federally supported research add value, what is a legitimate return? B-D retained certain “march-in” rights for the government. But those are there to punish sloth, not greed: The National Institutes of Health (NIH) was recently asked to intervene in a case in which a drug manufacturer was making a hefty profit on an invention resulting from NIH-sponsored research. NIH refused (Science, 4 June 2004, p. 1427; and 13 August 2004, p. 926), supported by assertions from Senators Birch Bayh and Robert Dole themselves that price controls had not been contemplated in B-D.

That position follows a policy rationale used by the government ever since it entered basic research after World War II. Federal support of basic research was justified because it would generate good ideas; these would then attract private risk capital for development into products. It was assumed that those developers were entitled to a return on the value added, but that assumption may be unraveling. Drugs that generated large royalty payments to universities from domestic sales but were needed in poorer nations were natural targets for resentment: Students demonstrated over such cases. Meantime, Congress considered a bill to garnish royalty payments to universities for “blockbuster” drugs developed from a basic research idea. Scientific journals, including Science and other nonprofit society journals, were invited by Congress to make papers reporting government-sponsored research freely available and to find another way to finance the value added through editing, review, and evaluation.

Inconsistency and ambivalence prevail. We want technology transfer, but we resent those who take federally supported work, add some value, and receive a return on their investment. The same NIH that urges nonprofit publishers to give that value away properly declines to make drug manufacturers sell drugs cheaply if they were derived from NIH research. Some scientists resent any controls over material transfer; others insist that they’re essential. Critics decry the “corporatization” of the university, yet academic/corporate collaborations flourish. B-D has neither a sunset nor a reauthorization requirement, but after a quarter-century it may be time to measure the innovation it has created and to balance that against the costs to universities, their faculties, and public trust in science.

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