The Enactment of Bayh–Dole

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ABSTRACT. The Bayh–Dole Act of 1980 reversed 35 years of public policy and gave universities and small businesses the unfettered right to own inventions that resulted from federally funded research. The Act was opposed by the Carter administration, which had a different view of how to utilize the results of federally funded research to drive economic development. It is not widely appreciated that the bill had died in the regular sessions of the 96th Congress and was only passed into law in a lame duck session necessitated to pass the budget. Only a magnanimous gesture of respect for Senator Birch Bayh, who had been defeated in the 1980 election, on the part of Senator Russell Long allowed the bill to receive the unanimous consent needed to pass a bill in lame duck session. This article lays out the roles of the key congressional staffers who forged this historic compromise and the last minute maneuvers needed to obtain President Carter's signature.

JEL Classification: O Economic development, technological change, and growth. O3 Technological change. O31 Innovation and invention: Processes and incentives. O32 Management of technological innovation and R&D

Unconected Proof

A recent article in the *Economist* (2002) said:

> Possibly the most inspired piece of legislation to be enacted in America over the past half-century was the Bayh–Dole act of 1980.

It is unlikely that anyone in the technology transfer community would dispute this statement, and foreign countries are now adopting the Bayh–Dole model, most recently Germany and, in the United Kingdom, Cambridge University, because they want to replicate the high technology-led economic development that Bayh–Dole is generally credited with having helped create. In the United States, however, a small number within academia and on Capitol Hill have expressed concerns about some of the consequences of Bayh–Dole, discounted its impact and advocated reforms of some of its provisions (Nelson et al., 2001).

Given Bayh–Dole's success, it is surprising that there is not more general awareness of how fragile the coalition was that passed Bayh–Dole and indeed that it almost didn't get passed at all. Bayh–Dole was passed in a lame duck session of Congress thanks to an incredible example of Senatorial courtesy and barely survived a pocket veto by Jimmy Carter, who signed it into law on the last day possible.

Joseph Allen, currently the President of the National Technology Transfer Center in Wheeling, West Virginia was at the center of the drama. In 1974, Joe was 24 years old and got his first job on Capitol Hill on the staff of Senator John Tunney (D., CA). Tunney was defeated in the 1976 election and Senator Birch Bayh (D., IN) took over Tunney's Subcommittee of the Senate Judiciary Committee. Allen joined Bayh's Subcommittee staff.

Coming out of World War II, the United States was unchallenged in its political and economic leadership of the free world. However, by the end of the 1970s it was clear that U.S. industry had lost its international competitiveness to Europe and particularly Japan. This process had started with the success of the U.S. programs to rebuild its Allies and former enemies and was completed by the impact of the oil shocks of the 1960s and 1970s on an economy dependent on cheap domestic energy. Examples of the loss of competitiveness abounded, from the loss of U.S. leadership in both mature industries such as automobiles and televisions and emerging industries such as memory chips and the creation of new industries dominated by Japanese companies but based on American and European innovations such as VCR's and compact discs.

Stock market indices vividly quantify the swings in relative economic power. On August 6, 1957, the Dow Jones Industrial Average closed at 501,

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while the Nikkei Stock Average of 225 major Tokyo stocks closed at 496. That was the last time the Dow closed ahead of the Nikkei for almost 50 years. On December 29, 1989, the Nikkei peaked at 38,916, an astonishing fourteen times higher than the Dow, which closed at 2,753 that day. Not until mid 2002 would the Dow again close higher than the Nikkei.

As the 1970s came to a close therefore, the U.S. Congress was struggling to find ways to rejuvenate the U.S. economy. Three philosophies were struggling for supremacy and bore an unerie resemblance to some of the opposing philosophies that had fought for supremacy in the newly independent America. A microcosm of this debate was reflected in the discussion over how best to manage more than $75 billion a year invested in Government sponsored R&D:

- The first philosophy was a Hamiltonian belief that the solution lay with a strong central government, which should take charge and actively manage these resources. In the 1970s, this philosophy was advocated by Senator Adlai Stevenson (D., IL) and the Carter Administration.
- The second philosophy was a Jeffersonian belief that the solution lay with the individual and that the best thing government could do to provide incentives for success was get out of the way of these individuals. This mantle was borne by Senators Birch Bayh (D., IN) and Robert Dole (R., KS).
- The third philosophy, in some ways in the middle of the first two but in some ways at the opposite apex of a triangle from them, held that government could only hurt and that it should make sure that everyone benefited financially from government's efforts; the flag bearer of this philosophy was the populist Senator Russell Long (D., LA).

The seemingly arcane issue of government patent policy became a battlefield for these competing philosophies as economic stagnation pushed this issue to the fore. Starting after World War II, the government had been taking an increasingly strident position that any inventions that resulted from federally funded research belonged to the government and would only be non-exclusively licensed—the "favor everyone one" philosophy. Realizing that the policy nullified economic incentives for commercial development, Presidents Kennedy, Johnson and Nixon issued limited exceptions to this rule through Presidential policy memoranda. However, in quick succession, the federal government sued Stokely Van Camp in 1965 to force the company to abandon the patents filed on Gatorade by Dr. Robert Cade at the University of Florida and then sued the University of Wisconsin to obtain title to the anti-cancer drug, 5-flurouracil, after a secretarial coding error had attributed the purchase of $120 worth of reagents to a federal grant in a major project otherwise totally funded by a drug company.

Some people had started to realize that this idealistic approach was inhibiting the development of promising inventions simply because the government owned the rights. Norman Latker, Deputy General Counsel at the Department of Health Education and Welfare had therefore created Institutional Patent Agreements that allowed universities to take title to inventions that resulted from their work under federally funded grants. However, these agreements were totally at the government's discretion and only applied to grants from HEW.

The momentum for a fundamental legal overhaul of federal patent policy started in Bayh's home state of Indiana. Purdue had made several important discoveries under grants from the Department of Energy, which didn't issue Institutional Patent Agreements. Ralph Davis, the Technology Transfer Manager at Purdue complained to Bayh, who asked Allen to investigate. Allen met with Howard Bremer, Ralph Davis and Norm Latker and confirmed the problem. Coincidently, Barry Leshowitz, who was on leave from the University of Arizona as an intern on the staff of Senator Robert Dole (R., KS) sensitized Dole to the fact that important discoveries were being bottled up at the agencies (Etzkovitz, 2002). Agreeing to collaborate, Bayh and Dole directed their staffs to develop a bill that, because of Senatorial courtesy, was called the Dole–Bayh Bill in the 95th Congress with the understanding that during re-introduction in the 96th Congress it would be the Bayh–Dole bill.

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Introducing the Bill to the Senate on September 13, 1978, Birch Bayh said:

> A wealth of scientific talent at American colleges and universities—talent responsible for the development of numerous innovative scientific breakthroughs each year—is going to waste as a result of bureaucratic red tape and illogical government regulations . . .
>
> The problem, very simply, is the present policy followed by most government agencies of retaining patent rights to inventions.
>
> Government sponsored research is often basic rather than applied research. Therefore, many of the resulting inventions are at a very embryonic stage of development and require substantial expenditures before they actually become a product or applied system of benefit to the public.
>
> It is not government's responsibility—or indeed, the right of government—to assume the commercialization function. Unless private industry has the protection of some exclusive use under patent or license agreements, they cannot afford the risk of commercialization expenditures. As a result, many new developments resulting from government research are left idle.

The bill was circulated for support and comments so that it could be rapidly re-introduced when Congress re-convened in 1979 for the 96th Congress.

Bayh and Dole reintroduced the bill in 1979 as S. 414, the Bayh–Dole Bill, titled "The University and Small Business Patent Procedures Act". A significant change from the earlier Dole–Bayh Bill was the addition of provisions for licensing Government-owned patents.

On April 8, 1979, the *Washington Post* published an article on the bill, highlighting the shameful treatment of Norman Latker, who had been fired by Joseph Califano, Secretary of HEW, for his work on establishing Institutional Patent Agreements which the Carter administration vigorously opposed. Several of the universities that had benefited from Institutional Patent Agreements—in particular Wisconsin and Purdue—rallied to Latker's defense. They met with Allen and asked him to get Bayh and Dole to intervene on Latker's behalf, which the Senators did, publicly. Latker was reinstated.

Two days of hearings on the bill were held on May 16 and June 6, 1979, before the Senate Judiciary Committee, pitting two heavyweight witnesses on opposite sides of the argument. Arguing the case for Bayh–Dole was Elmer Staats, Comptroller of the United States. He testified to the failure of non-exclusive licensing to stimulate investment in early stage inventions. Howard Bremer talked about WARF's experiences. He said:

> Prior to the effective date of the IPA, December 1, 1968, no invention made at the University of Wisconsin with funds from DHEW (Department of Health, Education and Welfare) had been licensed to industry—one invention not falling under the IPA was licensed after that date. Since December 1, 1968, the Wisconsin Alumni Research Foundation has received a total of 69 invention disclosures under the Institutional Patent Agreements, has filed 79 applications on 55 of these disclosures and has had 55 U.S. patents issued.
>
> A total of 20 licenses were issued under one of more of these patents and patent applications, of which 14 are still extant.

Arguing the case against Bayh–Dole was Admiral Hyman B. Rickover, famous as the "Father of the Nuclear Navy" and a close ally of Senator Russell Long, who had long been a vocal critic of private use of government patent rights. Rickover argued that he had been able to develop nuclear power systems for the navy without having had to give up property rights to the contractors. He said:

> In my opinion, government contractors—including small businesses and universities— should not be given title to inventions developed at government expense. That is the gist of my testimony. These inventions are paid for by the public and therefore should be available for any citizen to use or not as he sees fit.

It should be noted that in fact the Department of Defense routinely gave waivers to its contractors, which were invariably large companies, to allow them to retain title to patents. The bill's handlers tried to balance Rickover's views by having small businesses testify, pointing out that when they get government research contracts, the

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government takes the intellectual property rights away from them. No large company testified that they had any interest in working with universities. The Committee's main concern was that large companies would impede the diffusion of new technologies by restricting new developments that might threaten existing product lines. The Judiciary Committee had a long history of regarding intellectual property (as did the Department of Justice) as inherently monopolistic, which explains why Bayh and Dole limited the bill's impact to small businesses and universities.

During the hearings, Senators as politically diverse as Ted Kennedy (D., MA) and Strom Thurmond (D., SC) signed on as co-sponsors at the encouragement of the universities in their home states. By limiting the bill's scope to universities and small businesses, Senators like Gaylord Nelson (D., WI), who chaired the Senate Small Business Committee, became supportive even though that Committee had historically been very suspicious of patents, regarding them as tools that big businesses used to beat down small businesses. WARF helped educate Nelson's staff and defuse his opposition and he later became a strong proponent of the bill.

On December 12, 1979 the Senate Judiciary Committee unanimously approved and reported S. 414 to the Senate, a remarkable achievement since the membership of the committee was in general liberal and anti-business and Bayh–Dole was intended to promote the interests of business, albeit small business. A major reason for this support was that Senators Bayh and Dole were highly regarded in their respective parties and built political bridges between liberals and conservatives through their strong support of the measure. An additional reason was the dire competitive crisis facing U.S. industry, which made Congress feel that some actions must be taken to build partnerships between the public and private sectors to respond to the growing Japanese and German economic threats. The Committee Report said:

> The bill is designed to promote the utilization and commercialization of inventions made with government support ... Ultimately, it is believed that these improvements in government patent policy will lead to greater productivity in the United States, provide new jobs for our citizens, create new economic growth, foster increased competition, make government research and development contracting more competitive, and stimulate a greater return on the billions of dollars spent each year by the Government on its research and development programs.

However, trouble was brewing elsewhere in the Senate. The Carter Administration was developing its own plan to use federal research to rejuvenate American industry through a bill being developed by the Senate Commerce Committee, co-sponsored by Senators Adlai Stevenson (D., IL) and Harrison Schmitt (R., NM). A key difference between Bayh–Dole and Stevenson–Schmitt was that Stevenson–Schmitt argued that the economy was really driven by large companies and their exclusion from Bayh–Dole was a major weakness in that bill. Stevenson and Schmitt's model was the Department of Defense, which, despite Rickover's strongly held views, routinely granted administrative waivers and allowed its contractors, which were universally large companies, to own the patents that resulted from research they had funded. On February 5, 1980, Senators Cannon, Stevenson, Packwood and Schmitt wrote their Senate colleagues:

> When the Senate takes up S. 414, a bill to establish a uniform federal patent policy for small businesses and nonprofit organizations, we intend to offer an amendment extending this policy to all government contractors.

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Senator Russell Long was implacably opposed to big business getting ownership of government-funded patents. He told Allen: "This is the worst bill I have seen in my life." Eventually, Bayh and Dole were able to defeat the Stevenson–Schmitt bill.

Another pending bill, which later became the Stevenson–Wydler Act, would have led to a Japanese MITI-style federal role in economic development by establishing centers for managing technology throughout the country. It also established the Federal Laboratory Consortium.

The Bayh–Dole Bill came to the Senate floor for debate and on April 23, 1980, was approved on a 91–4 vote. Announcing the victory, Birch Bayh said:

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> What sense does it make to spend billions of dollars each year on government-supported research and then prevent new developments from benefiting the American people because of dumb bureaucratic red tape?

However, trouble was brewing on the other side of the Capitol. The Carter Administration's bill, the Kastenmeier Bill (Robert Kastenmeier, D., WI) was passed out of the House Governmental Affairs Committee as HR-6933. On September 24, 1980, Russell Long wrote to Bayh expressing his concerns about the big business aspects of HR-6933. On September 26 Bayh wrote back to Long promising to amend HR-6933 when it came to the Senate. However, time ran out and Congress adjourned for the 1980 elections with Bayh–Dole having no corresponding House counterpart that could lead, after a House-Senate conference, to a bill that the President could sign.

The 1980 elections produced one of the major changes in the course of American history. Ronald Reagan defeated Jimmy Carter and the Republicans won control of the Senate for the first time since the Truman Administration. Birch Bayh was defeated by Dan Quayle. Adlai Stevenson retired. Robert Kastenmeier barely won reelection. Legions of staffers would be out of work come January 15, 1981. Washington was turned upside down and all bets were off.

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However, Congress had adjourned without passing the budget and had to return for a lame duck session, so there was one last opportunity to pass Bayh–Dole before one of its two named sponsors departed Capitol Hill forever. First Allen tried to add Bayh–Dole to several "must pass" House bills with the help of the Small Business Committee staff, but no suitable vehicle could be found. Then Bruce Lehman, who was on Kastenmeier's staff and who would one day become Commissioner of the U.S. Patent and Trademark Office, called Allen with a deal. The House Judiciary Committee, which Kastenmeier chaired, had passed out an Omnibus Patent Bill. Kastenmeier would add the provisions of Bayh–Dole to his bill in the House if Bayh would agree to accept the other parts of the House bill affecting the operations of the Patent and Trademark Office. Bayh had competing bills in the Senate on these provisions but Allen accepted the deal. The House then passed HR-6933 with Bayh–Dole inserted. However, to become law the identical legislation needed to be passed in the Senate before proceeding to the President for signature into law. Because of this quirk of history, the official record shows the legislative history of HR-6933 as the legislative history of Bayh–Dole, not the legislative history of S. 414, which could be problematic if a court is ever called on to divine what the intent of Congress was when it passed Bayh–Dole.

The rules of lame duck sessions are harsh. There is no time for debate, so bills can only be passed by unanimous consent and a single Senator can block a piece of legislation by simply placing a "hold" on the bill, meaning that they object to it being considered for passage. By now there were only a few days of the lame duck session left.

Allen's first concern was Russell Long who had been an implacable opponent of Bayh–Dole. He could now, by himself, kill the bill and, given the duration, extent and passion of Long's opposition, Allen was not optimistic. Wiley Jones, Long's staffer, met with Allen in the final days of the session and asked him two questions:

First he asked: "Does Birch really want this?" Allen answered quite simply "Yes, he really wants it." The next question was more difficult. With Bayh defeated, Allen was also out of a job. If the bill was defeated in the current Congress, Allen could use his intimate knowledge of the issue to get hired by a returning Senator who would then reintroduce the bill in the next Senate. Jones asked Allen "Is this bill good for you, Joe, and do you really want it?" Allen didn't blink. "Yes, I really want it." "OK", said Jones, "As a farewell present to Birch, you've got it." The U.S. Senate is rightly proud of its tradition of Senatorial courtesy, and Long's willingness to yield on an issue on which he felt so strongly is a stunning example of this courtesy. It is hard to imagine an act of such Senatorial courtesy in the current climate in Congress.

Allen thought he was home free. However, on November 21, 1980, as the 96th Congress ground to a close, Allen found that Majority leader Robert Byrd's staff (D., WV) had received a hold on considering the bill from a Democratic Senator. The identity of the dissenter was not revealed to Allen, but he worked out that it had to be Adlai Stevenson. Allen dealt with that

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ruthlessly but simply. Stevenson's "memorial" bill was to be the Stevenson–Wydler Act, also in the queue for consideration in the lame duck session. Allen tracked Stevenson's staffers to the Senate Cafeteria and told them that if Stevenson didn't remove his hold, Bayh would put a hold on Stevenson–Wydler. When they realized they were in a stalemate, Stevenson's staff promptly got Stevenson to remove his hold. Both bills were put on the calendar and would come up for consideration in the waning hours of the session. Again, Allen thought he was home free.

Byrd informed Allen that Bayh–Dole would be called up in 15 minutes and that if this window was missed it would lose its place in line. Allen called for Bayh from the Senate cloakroom and found that he was tied up in a press conference with journalists from Indiana discussing his defeat and wasn't going to be able to be on the Senate Floor in time to present the bill. Looking around, Allen found Bob Dole on the Senate floor, explained Bayh's absence and Dole agreed to call up the bill and read Bayh's floor statement on the bill. On November 21, 1980, the Bayh–Dole Act was finally passed by the Senate by unanimous consent.

Again, Allen thought he was home free. However, the rules for Presidential signature of a Bill are different in a lame duck session. The United States Constitution, Article 1, Section 1 states:

> If any Bill shall not be returned by the President within ten Days (Sundays excepted) after it shall have been presented to him, the Same shall be a Law, in like manner as if he had signed it, unless the Congress by their adjournment prevents its Return, in which case it shall not be a law.
>
> (emphasis added)

Jimmy Carter had 10 days to sign the bill and indications were that there was significant resistance, particularly at the Department of Energy, to its enactment. Again, Allen turned to a friend, Milton Steward, who headed up the Office of Advocacy in the Small Business Administration and would go on to found *Inc*. magazine. Stewart had organized President Carter's small business summit and knew several small business leaders with connections to Carter's chief of staff, Stuart Eisenstadt. They all applied pressure on the White House and these efforts finally persuaded Carter to sign the bill. On December 12, 1980, Bayh–Dole became law by amending Title 35 of the United States Code, entitled "Patents", by adding a new chapter 30. This was the last day for Carter's signature before inaction would have resulted in a "pocket veto" of the bill. Still Allen's battle wasn't over. The next step was the implementing regulations—37 CFR Part 401 and 35 USC 200–212. The drafting of these fell to the next Administration and grew into a drag down, knockout fight, with the DOE fighting every step of the way to limit the scope of Bayh–Dole. For example, at one point DOE proposed exempting every technology that was covered by the Export Control List from Bayh–Dole. By now Allen was working as a lobbyist for an intellectual property trade association in Washington, DC and Norman Latker took over the stewardship of Bayh–Dole at the Office of Federal Procurement Policy which was initially assigned responsibility for implementing the new Act. When Latker and Allen later teamed up at the Department of Commerce, Dole amended Bayh–Dole to move oversight to Commerce, where the responsibility remains. The battle over the implementing regulations was not finally settled in favor of Latker and Allen until 1984. DOE's resistance led Senator Dole to amend Bayh–Dole with a series of amendments, one of which included adding university-operated federal laboratories to the coverage of the law.

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Almost immediately the attempts to limit the scope and coverage of Bayh–Dole started. One of the first was in 1982, when a very young Al Gore on the Science and Technology Committee of the House proposed exempting any inventions to do with biotechnology from Bayh–Dole, arguing that this was far too important an area of technology to be left to universities to manage.

The incoming Reagan Administration had a decisive say in what happened next. The 96th Congress had left two freshly signed bills on Reagan's desk which were diametrically opposite in their spirit and intent. On the one hand, Bayh–Dole devolved responsibility for commercializing the results of federally funded research to the local level by giving responsibility and control to the universities that had carried out the research. On the other hand, Stevenson–Wydler would have centralized control in the government's hands

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through a network of federally funded technology development centers. In his Presidential Memorandum on Patent Policy of 1982, Reagan backed the Bayh–Dole approach. Whether this was the result of blind adherence to political philosophy, inspired government insight or simply the easier choice for a young administration fighting another oil price shock by avoiding the need to create a whole new bureaucracy will probably never be known.

Acknowledgments

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