

Introduction

The Federal Government holds numerous patents on inventions and discoveries from successful public research. But patents exist to restrict the use, sale, and manufacture of inventions. If a primary objective of the public sector is to distribute the benefits of public research as widely as possible, why does the government patent at all?

The key principle behind patenting is that granting a proprietary right to generate income from inventive activity is expected to spur inventions. At the same time, disclosing the invention adds to the stock of knowledge, thereby enabling further discovery. Inventiveness and technical change are the engines of economic growth—so it is generally presumed to be in the public interest to grant intellectual property rights (IPR). The private sector depends on clearly defined and enforceable property rights for markets to function and, therefore, enforceable IPR might stimulate private sector investment in research and development. But this does not explain why the public sector would need to patent its technologies.

One explanation for public sector use of patents is that patent rights are not only a means of capturing revenue, but also a mechanism through which public laboratories and other government research facilities can transfer technology they have developed into widespread use. Patent rights on Federal research are typically licensed to corporate partners, providing incentives for subsequent development of commercial products. The Bayh-Dole and Stevenson-Wydler Acts of 1980 were intended to increase the rate at which new technologies are commercialized and to facilitate inventor involvement in technology development.¹

Patent awards raise awareness about public research results. Greater awareness of recent results can spur further private sector development. Government patenting allows Federal research facilities to take credit for their work. Another rationale for government patenting is defensive in nature—the increasingly widespread use of patents could obstruct the government from pursuing public research objectives. Overlapping patent rights—for example, when a large number of owners hold rights in previous discoveries that could be used as building blocks in future research—might motivate patenting of Federal research when such overlapping rights threaten commercial use of the research, or when they hamper widespread use of federally developed research tools.

The debate over the appropriate role of patenting for public sector research dates back to the 1920s and 1930s, when increasing links between university and industry research stimulated discussion of patent policy by university administrators and the American Association for the Advancement of Science. Some issues raised in those early decades anticipated the debates over the Bayh-Dole Act 45 years later (Mowery and Sampat, 2001). Debates about the Federal Government’s right to patent the results of federally funded research date back to the 1880s, but assumed greater importance at the beginning of World War II (Jaffe and Lerner, 2001; Cohen and Noll, 1996).

¹The Bayh-Dole Act allowed universities, nonprofit institutions, and small businesses to patent research discoveries partially financed with Federal funds. The Stevenson-Wydler Act allowed Federal laboratories to issue exclusive licenses for patents of their inventions. For a fuller discussion, see the chapter titled “Technology Transfer by Federal Agencies.”

The Bayh-Dole and Stevenson-Wydler Acts were part of a series of broad IPR policy changes over the past 25 years. This legislation extended privileges for patenting and licensing by inventors in universities and government laboratories whose inventions were developed partly or wholly with Federal funding. The other major changes were:

- (1) The creation of the Court of Appeals for the Federal Circuit (CAFC) in 1982 to provide a single national court for the judicial review of patent decisions
- (2) The extension of the applicability of patent rights to new technological areas, particularly gene technology, software, or business methods²
- (3) Attempts to extend and harmonize intellectual property protection internationally through trade agreements (Jaffe, 2000).

These policy changes have stimulated a great deal of economic analysis of IPR policy (Jaffe, Lerner, and Stern, 2001; 2002; 2003; 2004; 2005; Cohen and Merrill, 2003). To date, this research has focused particularly on patenting by private firms and universities. With a few exceptions, little analysis has been done regarding patenting as a means of technology transfer from Federal laboratories (Jaffe and Lerner, 2001). The same instrument—e.g., patenting and licensing—may often be used with different, although partially overlapping, ends in mind, as firms and universities have different objective functions. Jaffe and Lerner’s research suggests that the objective functions of Federal laboratories are likely to differ further from those of both private firms and universities. Our report provides a detailed examination of issues raised by government patenting behavior, with empirical examples drawn from patenting and licensing by the Agricultural Research Service (ARS) of the U.S. Department of Agriculture (USDA). Our analysis, like Jaffe and Lerner’s, suggests that ARS uses patents and licenses in different ways than firms or universities do.

²These extensions were signaled both by judicial decision—for example, the Supreme Court ruling in *Diamond vs. Chakrabarty* extending patentability to genetically modified microorganisms in the case of gene technology—and modifications in the U.S. Patent and Trademark Office’s examination procedures.