

limit "the financial returns from patent licensing."⁹⁵ Additionally, licensing becomes difficult because of valuation problems in early stage inventions that universities are forced to try and commercialize under Bayh-Dole.⁹⁶

3. Misallocated Research Priorities

A major criticism of Bayh-Dole is that it "distorts research priorities" by "redirecting resources away from basic research to more commercially viable lines of inquiry."⁹⁷ Scholars note that the nature and direction of academic research may be compromised due to universities and researchers' conflicting economic incentives.⁹⁸ The ultimate concern is that Bayh-Dole will lead to research and development with for-profit motives, and this conflicts with the policies outlined in the Act.⁹⁹

A recent federal court decision may have indirectly criticized Bayh-Dole on these grounds. In *Myriad*, a court rules against multiple biotechnological patents, stating that they were "purifications of a product of nature" and thus do not possess the requisite utility.¹⁰⁰ Though this decision has recently been reversed by the Federal Circuit, commentators note that *Myriad* "represents an almost caricature-like example of the pitfalls of... technology transfer," as the purpose of the patent was to gain a valuable market commodity, and not to contribute to broader medical research.¹⁰¹

- 95 See Mowery et al., *supra* note 5, at 84. The general assertion is that Bayh-Dole's over-incentivizing universities to patent inventions will cause problems in the long run, as the costs incurred in managing the patents will indirectly lead to a higher price in any licensing contract. This would lead to sunk costs and become a disincentive for industries to want to become engaged in technology transfer.
- 96 See Clovia Hamilton, *University Technology Transfer and Economic Development: Proposed Cooperative Economic Development Agreements Under the Bayh-Dole Act*, 36 J. MARSHALL L. REV. 397, 406 (2003). The requirement to patent and the duty to commercialize also lead to "a number of low-value exchanges and agreements that have a low potential of truly yielding anything of commercial value." *Id.*
- 97 See Bayh-Dole at 25, *supra* note 30, at 31. This article continues by rationalizing that the "federal government's funding priorities have also always favored practical applications," in an attempt to demerit the critique of the act.
- 98 See Hamilton, *supra* note 96 at 406.
- 99 See Kathryn R. James, *The Myriad decision: Judicial criticism of the Bayh-Dole Act and its progeny?*, ABA Health eSource Vol 6-10 (June 2010), at page 3.
- 100 See Association for Molecular Pathology et al. v. United States Patent and Trademark Office et al., 702 F. Supp. 2d 181 (S.D.N.Y. 2010), *rev'd in part*, 2011 U.S. App. Lexis 15649 (Fed. Cir., 2011).
- 101 James, *supra* note 99, at 3. Commentators note that the *Myriad* patents were filed to obtain exclusive control over uses of a particular gene for profit. This maneuver arguably did not contribute to the "public good" and was provoked solely by economic motives. See *id.*

These misallocated priorities can ultimately lead to a complete market failure. A similar criticism invites the analysis that the incentives of Bayh-Dole move research away from socially critical industries, such as cures for rare diseases.¹⁰² Hence, the BDA arguably may not be achieving what some believe to be an important objective of contributing to the public welfare.

4. The "Anticommons" Effect

The metaphor "tragedy of the commons" was developed in 1968 when Garrett Hardin attempted to explain some biological and ecological phenomena.¹⁰³ The theory states that when people own a resource in common, they will overuse because there is no incentive to conserve.¹⁰⁴

The "tragedy of the anticommons" is the converse of that theory, and it applies particularly in patenting. The theory states if there are multiple owners, each has a right to exclude others from a scarce resource. Thus, no one has an effective privilege of use.¹⁰⁵ Thus, patented technologies are ultimately underused and not commercialized. While this problem occurs in patenting generally, it is particularly prevalent in the biotechnology field, where patents are incredibly important, transaction costs of trading patents are very high, and future discoveries build upon past discoveries.¹⁰⁶ Commentators argue that Bayh-Dole exacerbates the anticommons problem with its practical consequence of increased early stage patenting of discoveries that would have been left to the public domain absent Bayh-Dole.¹⁰⁷ This hypothesis will be further studied in chapter *IV-B, infra*.

102 See Bayh Dole at 25, *supra* note 30, at 28. The article continues by stating that even though Bayh-Dole may not have specifically incentivized "less profitable" research areas, other Acts of Congress, such as orphan drug legislation, have responded to the issue. *Id.*

103 See Michael A. Heller and Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, *Science*, Vol. 280, 1 May 1998, at 698. This metaphor is now a central theory in economics, law and science.

104 See Pulsinelli, *supra* note 93, at 415.

105 *Id.* Thus, these scarce resources (specifically patented inventions) are prone to *underuse*. See Rachel A. Ream, *Nonprofit Commercialization Under Bayh-Dole and the Academic Anticommons*, 58 *CASE W. RES. L. REV.* 1343, 1347 (2008).

106 See Ream, *supra* note 105, at 1347-1348.

107 See Pulsinelli, *supra* note 93, at 416. Another similar effect may be presented if both researchers and universities can assert rights because Bayh-Dole does not limit this possibility. This will be further explored in the analysis of *Stanford* in Chapter V, *infra*.