

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*.