

**The Contribution of American
Research Universities to
Technological Progress in Industry**

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BASIC POINTS

- The factual context
 - American university research has been spurring technological progress in industry for over a century
 - Until recently, little university patenting
 - There has been an explosion of patenting since the late 1970s
 - It is presently widely believed that university patenting is the key to universities spurring industrial innovation

MY ARGUMENT

- Patenting neither sufficient nor necessary
- In some cases patenting useful, and in other cases counterproductive
- Focus on patenting takes attention away from basic reasons why American universities have contributed so much to industrial development

FACTORS BEHIND THE RISE OF PATENTING

- Widely believed that it was all the result of the Bayh-Dole Act. This is too simple a view. Basic causes were
 - Development and maturation of new fields of science and new techniques Molecular biology and biotech Electronics, computation, instrumentation, software
 - Widening and strengthening on scope of patent law
 - Biotech
 - Software
 - Bayh-Dole provided legitimation for university patenting

DOES UNIVERSITY PATENTING HELP TRANSFER?

- Theory behind Bayh-Dole
 - Results of university research are “embryonic inventions that need significant further development by industry
 - Industry won’t do that work unless they have an exclusive license
 - University researchers not interested in technology transfer unless they can get financial rewards
- Findings of a “small sample” study
 - In some cases one or more of these assumptions are correct, and exclusive patent licensing helped
 - In a number of cases these assumptions did not fit the facts

A LOOK AT EARLIER HISTORY

- Areas where university research contributed greatly
 - Agriculture
 - Engineering
 - Military
 - Medical
- Characteristics of the university research system
 - Flexible and effective in developing engineering disciplines and applied sciences
 - Strong links with industry and other user groups
 - Decentralized, pluralistic

MYTHS AND DOWNSIDES OF UNIVERSITY PATENTING

- Myths
 - In most cases necessary for technology transfer
 - Will greatly help universities financially
- Downsides
 - Can lead to internal university conflicts and conflicts of interest
 - Can damage relationships with industry
 - Complicate the doing of science
 - Threaten rationale for public support