

**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