

# University-Industry Technology Transfer

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# Data Sources

- AUTM annual survey
- NRC 1993 Survey
- NBER patent database
- USPTO patent data
- Web of Science (Thomson ISI)
- Internet searches
- National Faculty Directory
- Delphion
- LexusNexus
- Private data from universities on faculty disclosure and funding
- Thursby/Thursby Surveys
  - University technology managers
  - Industry licensing executives

# Three Faculty “Issues”

1. Does increase in licensing reflect a shift from fundamental research or simply increased willingness of faculty to license as well as publish (or both)?
2. How is the propensity of faculty to disclose related to individual characteristics?
3. What is the life-cycle behavior of faculty with respect to research, publication, and license-related activity?

# Who is Selling the Ivory Tower?

## Sources of Growth in University Licensing

(MGT Science, 2002)

### Business Survey - (Licensing Executive Society List)

- 114 respondents licensed - in university inventions 1993-97
- Respondents executed 417 licenses with universities in 1997 (15% of total licenses, AUTM)
- Those who identified universities most critical, dealt with 85 universities

### AUTM Survey and NRC data

- Analysis of Productivity Growth

# Reasons Behind Increasing Contracts

	<u>1&amp;2</u>	<u>3</u>	<u>4&amp;5</u>
1. Cost of univ. research	26.4	26.4	33.5
2. Faculty research more oriented toward business	28.3	24.5	35.9
3. Change in univ. receptivity to contracts	52.8	18.9	20.7
4. Change in our unit's reliance on external R&D	54.8	9.4	28.3
5. Change in basic research by our unit	37.8	18.9	35.8

\* 1 = EXTREMELY IMPORTANT      5 = NOT IMPORTANT

# Stage Inputs and Outputs

Invention Disclosures	Size of TTO Total faculty Lagged Research funds
Patent Applications	Invention Disclosures Size of TTO Quality of faculty
Licenses Executed	Invention disclosures Patent applications Size of TTO Quality of faculty

# Nominal Growth and TFP (1994-1998)

	<b>Nominal Growth</b>	<b>TFP</b>
Disclosures	7.1%	2.7%
Patent Applications	17.1%	12.1%
Licenses Executed	8.4%	-1.7%

# Patent Assignment

Is the set of university assigned patents the universe of university generated patents?



# Scientist and Engineer Population

34,202 scientists and engineers at the 87  
Research I Universities in 1993

- 35.9% Physical sciences
- 24.3% Engineering
- 39.8% Biological sciences

# Patent Years

## Sample

- Patents applied for in 1993
- Patents granted in
  - 1997
  - 1999
  - 2004

# Patent and Inventor Counts

- 6425 patent/inventor pairs
- 5772 patents
- 2908 inventors

# Assignments (By Patent)

<b>Non-Profit</b>	<b>Firm</b>	<b>Unassign</b>	<b>Non-Profit &amp; Firm</b>
<b>62.5</b>	<b>26.7</b>	<b>5.6</b>	<b>3.5</b>

*Remainder are to US Gov't or US Gov't & non-profit (1.7% for all years)*

# Questions

- Is assignment associated with patent characteristics?
- Is assignment associated with inventor characteristics?
- Is assignment associated with university characteristics?