Overview

• Introduce myself to start a conversation

• Two Relevant Databases to help inform your work
  – Circling the Triangle
  – The Evolving Research Enterprise

• Plenty of Time for Q & A
Circling the Research Triangle

Joint work with Nichola Lowe, RENCI & too many students to mention individually
Research Triangle Park &
50 years of Economic Development

• Everyone thinks they know the story
  – Build a Science Park & Q.E.D.
  – But it’s a more complicated history

• Why is the region successful?
  – Attract R&D labs of multinationals
  – Then adapt to entrepreneurship

• Why isn’t the region more successful?
  – How do we measure success?
Triangulate Data Sources

• > 4100 Entrepreneurial Firms
  – When does a firm begin?
• Firm Growth
  – Annual Employment Numbers
  – Annual Sales, Revenue
• Annual Innovative Activity
  – Patents
  – FDA trials
  – New Product Announcements
• Annual Events
  – Funding Raised
  – M&A, IPO
  – Participation in incubators, programs
Triangulating Data (>20 Sources)

- **Directories** (RTP, NC Biotech Center, CED, MCNC, BIO, CorpTech, Hoovers)
- University Technology Licensing Offices
- Patents, Clinical Trials, New Product Introductions
- N.C. Secretary of State
- **Funding** (Venture Economics, Capital IQ, Kenney-Patten IPO database)
- RSS & Web-based scraping
- National Employment Time Series
- Quarterly Census of Employment & Wages
Economic & Corporate Development
Division of NC Biotech Center (1988)

• Emphasize start-ups and recruiting R&D firms (1988)
• “work with outside organizations to analyze and address policy issues of biotechnological development” (1989)
• Small Firm Financing Program (1990)
• Incubator (1990)
• Venture Capital Conferences (1990)
• Summer MBA Associate Program (1991)
• Company Seed Funding; SBIR Matching Program (1992)
• Economic Development Finance Program Awards (1993)
• New University Tech Transfer Advisory Committee (1993)
• Patent Funding Assistance Program (1994)
• Finance Corning BioPro's recruitment (1994)
• Customized training for Biogen (1995)
The Evolving Research Enterprise

A Data Intensive Investigation of the Changing Sources of Academic Funding & the Impact on Outcomes and Academic Careers
Funding Sources of Academic R&D

Emerging Role of “Other”

- Federal accounts for 60% of Academic R&D
- Philanthropy represents 8%
  - $4.3 BN in academic research
  - larger share than industry (6%)
- “Own” funding over 20%
  - Fast growing category
  - Foundation gifts become endowment

Changes over time
Data Sources

• STAR METRICS Umbrella (Science and Technology for America's Reinvestment: Measuring the Effect of Research on Innovation Competitiveness and Science)

• U-metrics

• Proposals & Awards
  – 6 Universities (2 + in play)
    • 375K Proposals
    • 210K Awards (56% hit rate)
  – 18,315 unique sponsors

• Sponsored Research Agreements

• Outcomes – Publications, Inventions, Patents, Licenses, Companies
Drug Discovery Pipeline

1. **Basic Research**
   - Traditional Philanthropy/Government

2. **Discovery**
   - Venture Capital

3. **Development: Pre Clinical**
   - Private Equity/Public Markets

4. **Clinical Development: Phase I-III**
5. **Manufacturing**
6. **Marketing & Sales**
Accelerating Commercialization

Traditional Philanthropy/Government
- Basic Research
- Discovery
- Development: Pre Clinical
- Clinical Development: Phase I-III
- Manufacturing
- Marketing & Sales

Venture Capital

Private Equity/Public Markets

Venture Philanthropy
- Direct Funding of Research, Leverage Risk
- Connect researchers to VC Funders
- Maintain some IP rights to improve access to patients
Thank You