



The Innovation Economy in New York State

Citizens Budget Commission
Economic Development
Committee
December 3, 2009



Overview

- What is the innovation economy?
- What are New York's programs? What does it take to thrive?
- Where does NYS stand relative to a group of comparison states?
- How well are New York's programs working in key areas?
- What approaches are used in comparison states?
- Next steps



What is the Innovation Economy?

(aka “high-tech economy” or “tech-based economy”)

- ❖ Employs scientists, engineers, and technicians
- ❖ Engages in the design, development and introduction of new products/processes through application of science and technology
- ❖ Requires high commitment to research and development
- ❖ Uses state-of-the-art technology or techniques



What economic development programs does NY run in this area?

- New York Science, Technology, and Innovation Foundation (NYSTAR)
- Empire State Development's Centers of Excellence (COEs)
- Green programs through New York State Energy Research and Development Agency (NYSERDA)
- Tax programs



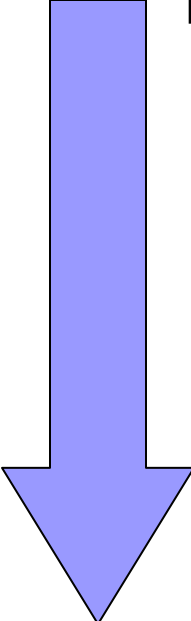
Where does NYS Stand vis a vis a cohort of competitor states?

- Cohort of competitor states

- Big 3 leaders: California, Massachusetts, North Carolina
- NY Neighbors: New Jersey, Connecticut, Pennsylvania
- Emerging leaders: Colorado, Texas



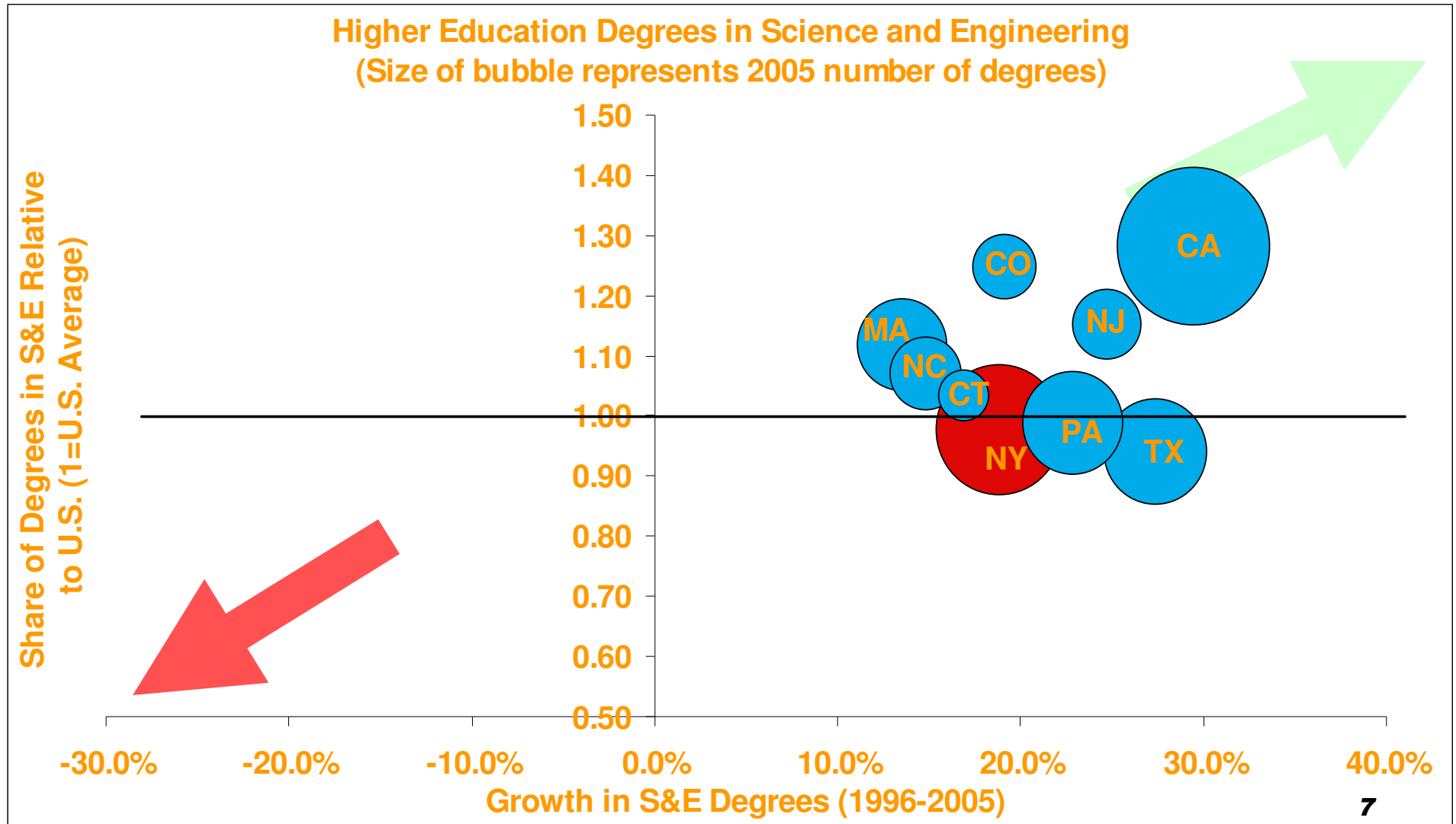
What does the innovation economy need to thrive?

- 
- Intellectual Capital (institutions to generate new knowledge; drivers of technological progress)
 - Research Connection to Industry (mechanisms to transfer knowledge and commercialize innovation)
 - Financial Capital (sufficient funding for all stages of development)
 - Entrepreneurship (environment that supports turning innovation into economic growth)

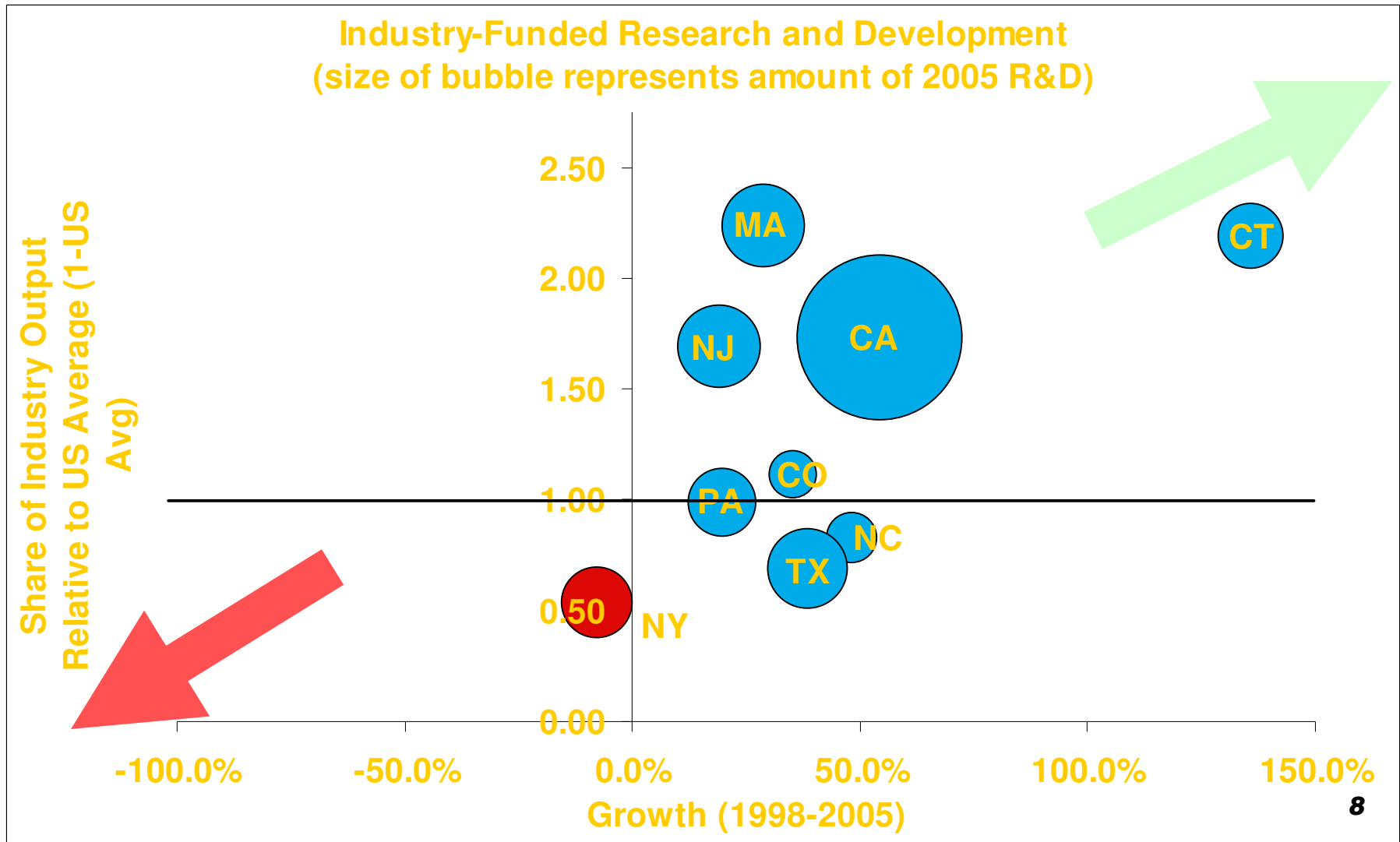
Outputs of Innovation Economy

- 
- ★ Concentration of High-Tech Employment (critical mass of firms and jobs to attract new business and talent)

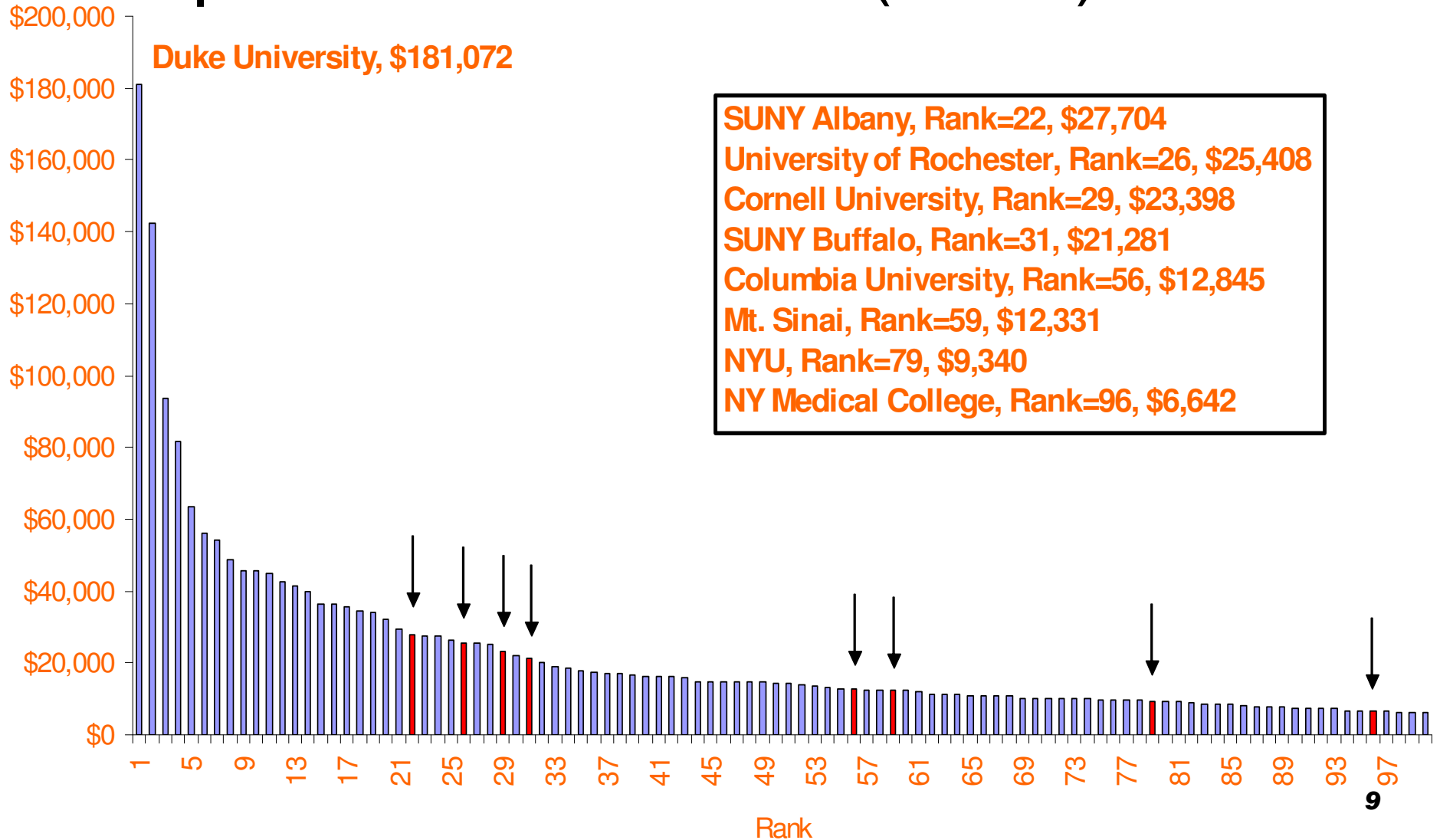
Intellectual Capital: Higher Education Degrees in Science and Engineering



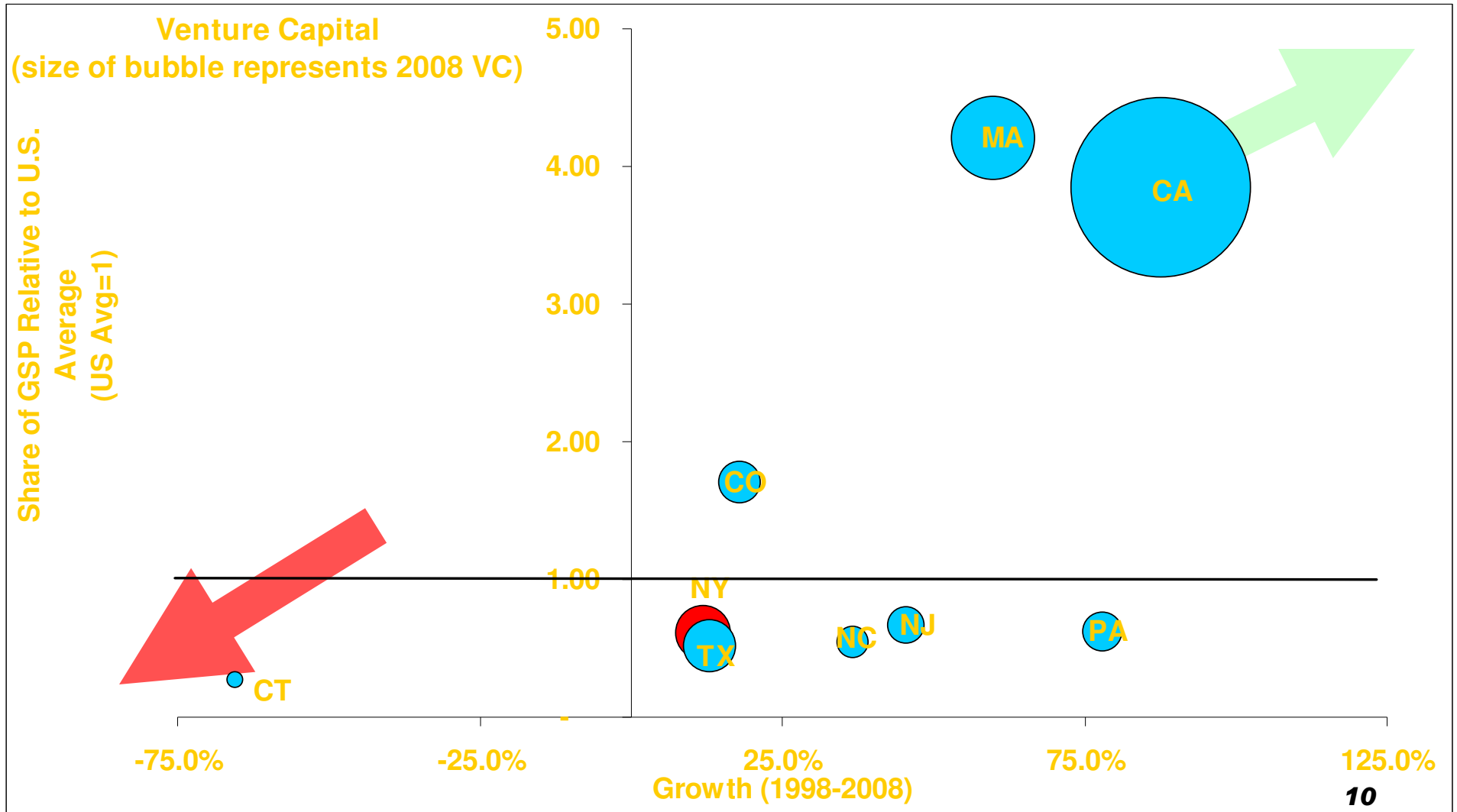
Research/Industry Connection: Industry-Financed, Private Sector R&D



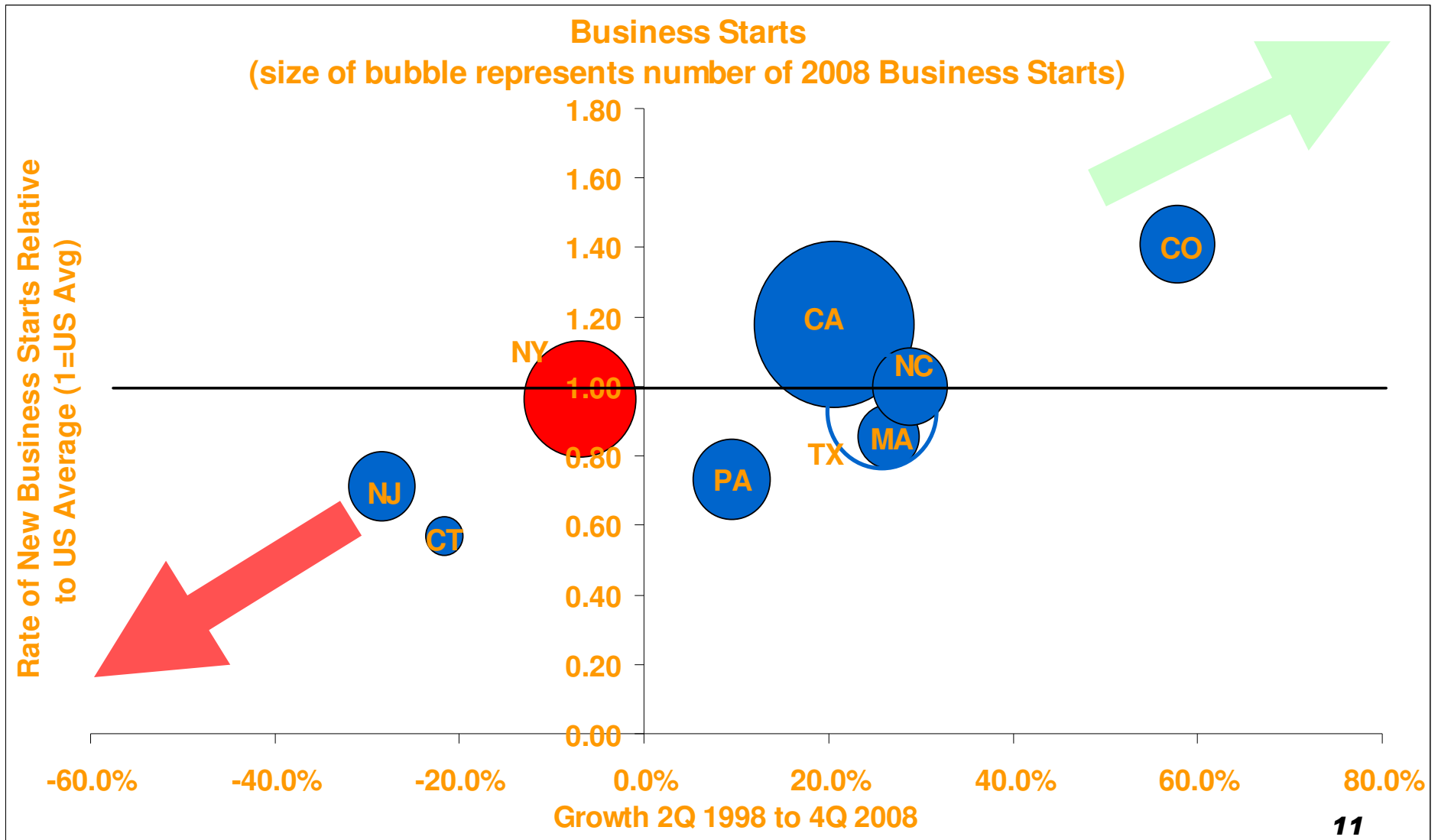
Industry-Financed Academic R&D: Top 100 Universities (2007)



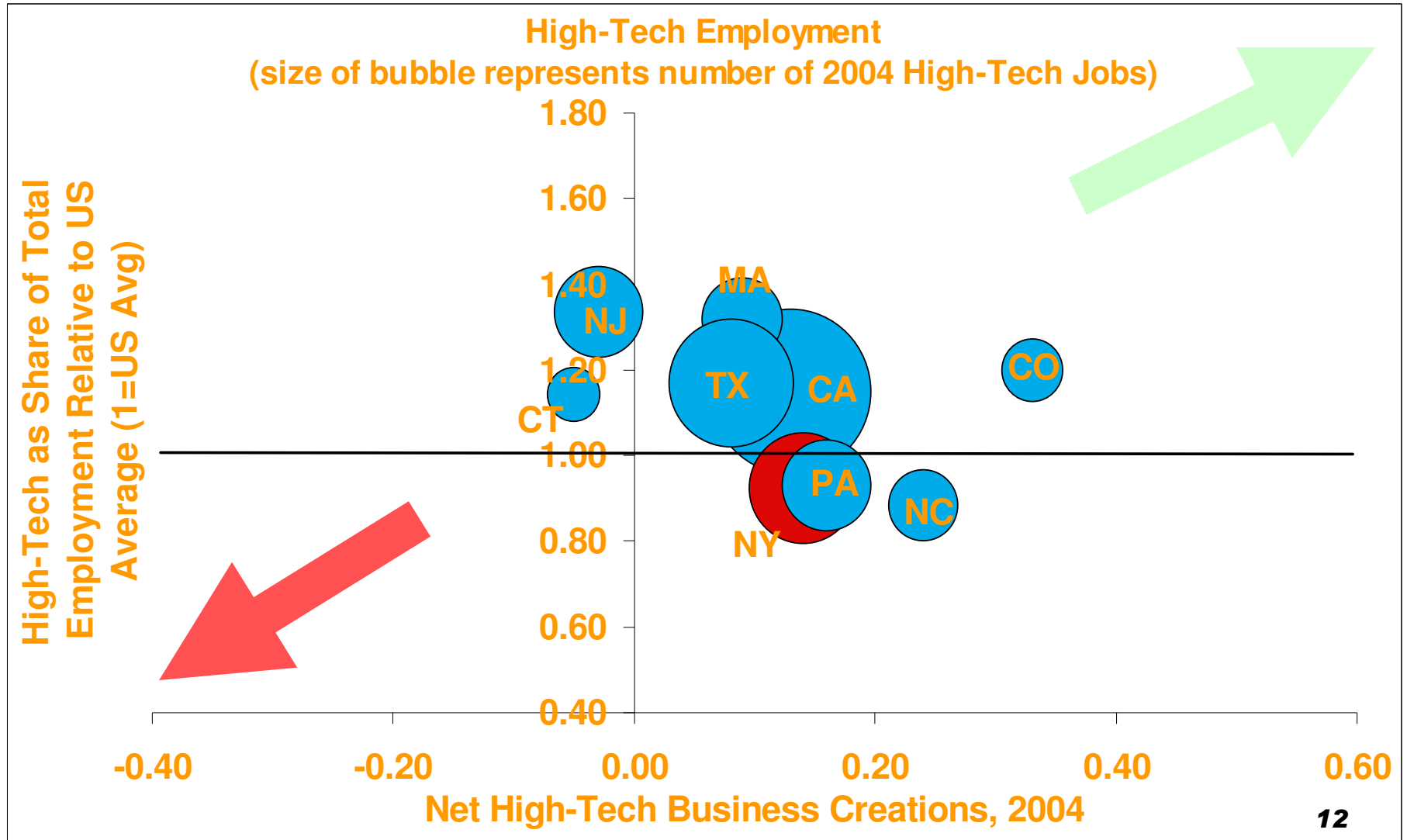
Financial Capital: Venture Capital



Entrepreneurship: New Business Starts



Concentration of High-Tech Jobs: Number of High-Tech Jobs

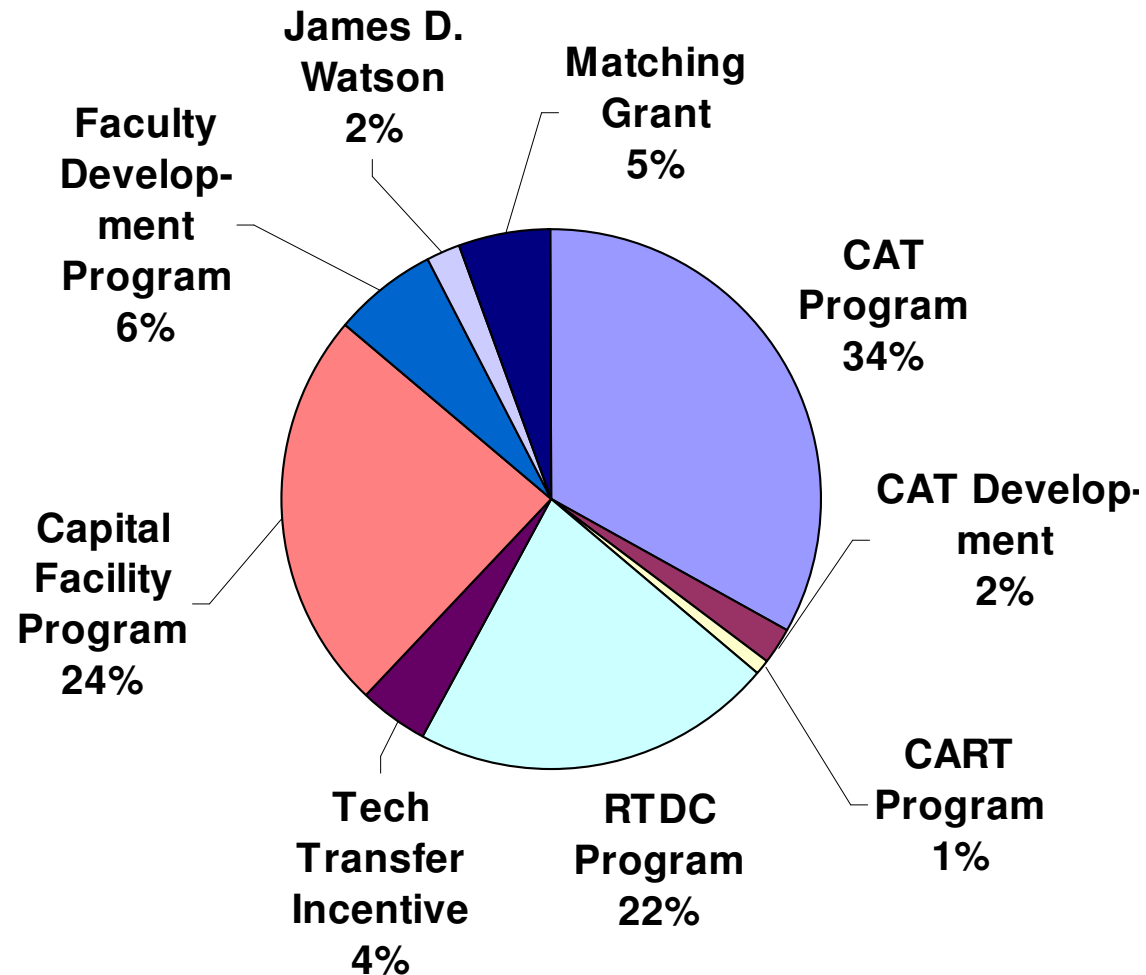




New York Science, Technology and Innovation Foundation (NYSTAR)

- Faculty Development Program
- James D. Watson Investigator Program
- Centers for Advanced Technology
- College Applied Research and Technology Centers
- Capital Facility Program (Strategically Targeted Academic Research Centers and Advanced Research Centers)
- Technology Transfer Incentive Program
- Matching Grants Leverage Program
- Small Business Technology Investment Fund: New York City Seed, Western New York Business Development Fund
- Ge*NY*sis

NYSTAR invested \$478m from 2000 to 2007





New York State Energy Research and Development Authority (NYSERDA)

- Hudson Valley Community College's Training and Education Center for Semiconductor (TEC-SMART)
- Energy Efficiency and Renewable Training
- Centers for Energy Efficiency and Building Science
- Saratoga Technology + Energy Park



Empire State Development (ESD)

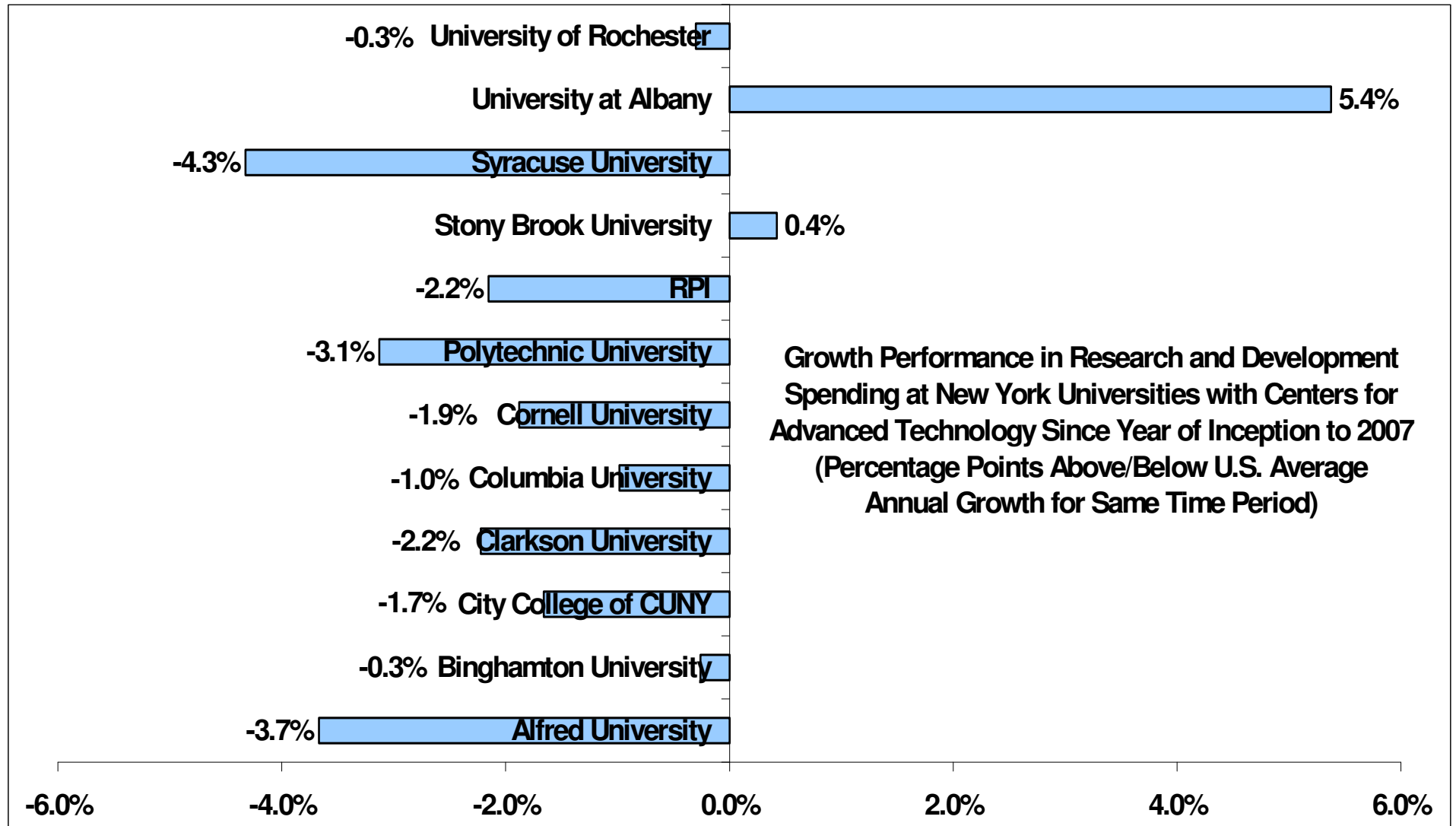
- Centers of Excellence received \$586 from 1997 to 2006
 - SUNY Albany Nanotech
 - SUNY Buffalo Bioinformatics
 - Rochester Photonics and Optoelectronics
 - Stony Brook Wireless and Information Technology
 - Syracuse University Environmental and Energy Systems
 - Binghamton Small Scale and Systems Integration



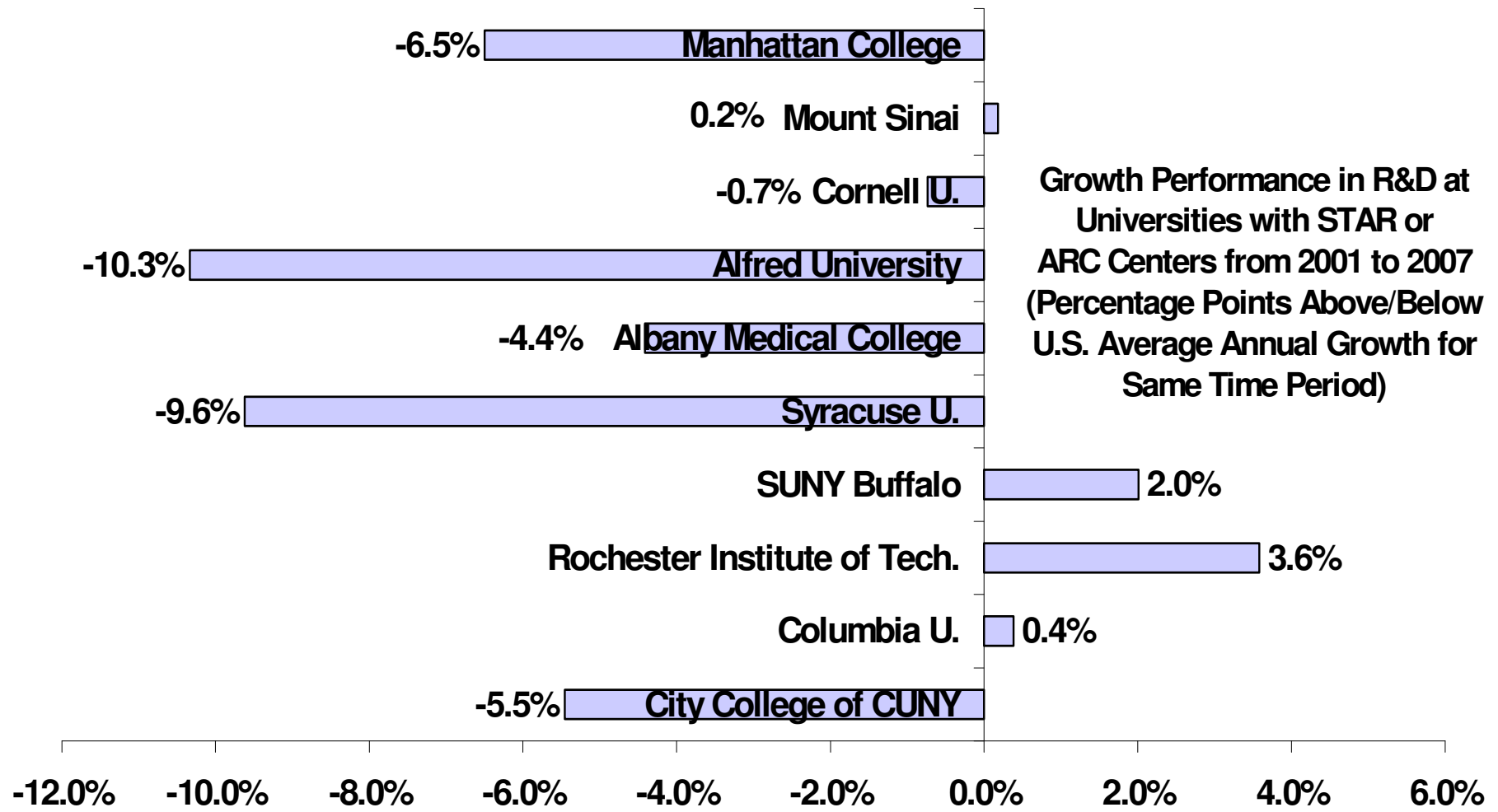
Tax Programs

- Qualified Emerging Technology Company (Capital Tax Credit, Employment Tax Credit, R&D Tax Credit for Capital and Expenses, Training Credit)
- EZ Regionally Significant Projects for high-tech and biotech
- Sales tax exemptions for R&D purchases
- Fuel Cell Electricity Generating Equipment Credit
- Alternative Fuel Refueling Property
- Green Building Credit

Preview of NYSTAR Evaluation: CAT Centers



Preview of NYSTAR Evaluation: STAR and ARC





Centers of Excellence

According to 2007 AT Kearney report, the Center of Excellence at SUNY Albany is the only CoE to obtain more than a 1:1 return in private sector investment.

As of 2006, SUNY Albany CoE leveraged \$3.5 in private investment for every \$1 in public investment.

CoE Funding Commitments through June 2006 (\$ in millions)

	<u>State</u> <u>Funding</u>	<u>Private</u> <u>Investment</u>	<u>Private</u> <u>Leverage</u> <u>Ratio</u>	<u>Federal and</u> <u>Other</u> <u>Investment</u>	<u>Total</u> <u>Leverage</u> <u>Ratio</u>
Center of Excellence					
Nanoelectronics and Nanotechnology (Albany)	\$342	\$1,200	3.51	\$162	3.98
All Other CoEs	\$244	\$135	0.55	\$638	3.17
Total	\$586	\$1,335	2.28	\$800	3.64

Overview of Competitor States: R&D Tax Credit not deep enough

	Effective Tax Rate	Applies to			Carry Forward	Refundable	Transferable
		Incremental Expense	Non-Incremental Expense	Capital Investment			
CA	13.7%	✓			✓		
CO	3% (only if in Enterprise Zone)	✓					
CT	6.0%	✓	✓		✓	✓ (partial refund for small biz)	
MA	10.0%	✓					
NJ	10.0%	✓					✓(operating losses also transferable)
NY	5.0%			✓		✓(for 1st 5 years for new biz)	
NC	5.0%	✓			✓		
PA	0.9%	✓					✓
TX	5.0%	✓			✓		



Preliminary Conclusions

- NY is not leveraging its public investments
 - CATS, STAR, COEs not demonstrating added R and D except for SUNY Nanotech
- Programs are divided and unfocused
 - Little relationship with economic strengths in areas with tech centers
 - Commercialization support nonexistent
- R and D tax treatment not substantial enough to overcome historical barriers



Next Steps:

- Draw on additional expert sources for more evaluative material
- Continue assessment of how New York's programs compare with other states
- Conference to convene a panel of experts?



Appendix: Examples of Initiatives in Competitor States

California

- New Jobs Credit (small business)
- Strong Environmental and Energy Efficiency Standards and Goals
- CONNECT (San Diego)
- California Technology Assistance Program (K-12)
- Science and Technology Legislative Policy Fellows Program



Appendix: Examples of Initiatives in Competitor States

Colorado

- Job Growth Incentive Credit
- Colorado Venture Capital Authority
- Governor's Energy Office
- Clean Energy Development Authority
(Clean Energy Finance Districts)
- Colorado Carbon Fund



Appendix: Examples of Initiatives in Competitor States

Connecticut

- New Jobs Creation Tax Credit
- Urban and Industrial Site Reinvestment Credit
- Connecticut Innovations (Connecticut's BioSeed Fund, Connecticut's Clean Energy Fund)
- New Energy Technologies (NET) Competitive Grant (small business)



Appendix: Examples of Initiatives in Competitor States

Massachusetts

- Biotechnology or Medical Device Manufacturing Jobs Incentive Payment
- Massachusetts Commonwealth Fund Investment Program II
- Corporate and Personal Energy and Energy Conservation Patent Tax Exemption
- MIT Venture Mentoring Service; MIT Deshpande Center for Technological Innovation
- Massachusetts Technology Development Corporation



Appendix: Examples of Initiatives in Competitor States

New Jersey

- Business Employment Incentive Program (BEIP)
- Small NJ-Based High Technology Business Investment Tax Credit
- Technology Business Tax Certificate Transfer Program
- Commission on Science and Technology (Edison Innovation Zones)



Appendix: Examples of Initiatives in Competitor States

North Carolina

- Job Development Investment Grant Program
- Article 3J Tax Credits
- One North Carolina Fund
- North Carolina Biotechnology Center (Centers of Innovation)
- Council for Entrepreneurial Development
- North Carolina Technology Development Authority (Innovation Research Fund, Business Incubator Development)
- Green Business Fund (\$950,000 awarded)



Appendix: Examples of Initiatives in Competitor States

Pennsylvania

- Opportunity Grant Program
- Keystone Innovation Zones
- Ben Franklin Technology Partners
- PA Venture Capital Investment Program
- Alternative Energy Investment Act
(alternative energy fund for loans, grants and rebates to homeowners and small business)



Appendix: Examples of Initiatives in Competitor States

Texas

- Texas Enterprise Fund
- Job Creation Tax Credit (strategic areas)
- Capital Investment Tax Credit (strategic areas)
- Austin Technology Incubator (U. Texas)