



THE UNIVERSITY OF TEXAS AT DALLAS SUMMARY PROFILE

BUDGET: \$260 million, employing more than 2,500 faculty and staff

STUDENTS: Approximately 14,500 total (11,000 FTE). Renowned for academic qualifications and accomplishments in academic competitions and research. Average freshman SAT score is 1,240, among the highest of any Texas public institution. Forty-one percent of freshmen graduate in Top 10%. Consistently ranked among the top 100 colleges and universities in the United States in number of freshmen National Merit Scholars. Transfer students comprise half of the undergraduate student body. Aggressive transfer student recruiting, tuition, and scholarship program to assure accessibility. About 45 percent are first-generation college students. Two-thirds are undergrads, the rest master's and Ph.D. students. About 80 percent graduate in the sciences, engineering or management. Four-year graduation rate in 2007 was 41%. Pre-med majors are admitted on first application to medical school at a rate of 61 percent, against a national admission rate of 49 percent. More than 54,000 students have graduated from the university since it joined the University of Texas System in 1969.

ACADEMIC PROGRAMS AND GROWTH: UT Dallas is a comprehensive university with an emphasis on engineering, mathematics, and the sciences. It offers more than 117 programs in seven schools. In less than 40 years, UT Dallas has become:

- No. 1 nationally in computer science degrees granted at the bachelor's and master's levels.
- First in the nation in the number of computer science degrees awarded to women.
- First in the U.S. to offer accredited bachelor of science in telecommunications engineering.
- No. 4 in the country in audiology according to *U.S. News and World Report*, a reflection of the quality of UT Dallas' Callier Center for Communication Disorders, which is nationally recognized for treatment and prevention of hearing, speech and language disorders.
- Ranked among the top 50 "Best Value" public colleges--*Kiplinger's Personal Finance*.
- Home of the top-ranked engineering graduate school in North Texas (No. 4 in Texas), according to *U.S. News and World Report's* 2007 graduate school program rankings.
- National Chess Champions, winners of the 2008 Final Four of Chess for the second consecutive year.

RESEARCH: More than \$46 million in annual research expenditures in 2007, which is expected to increase to \$56-58 million in 2008. Collaborative research in next-generation technology and biotechnology is conducted at such UT Dallas centers as the NanoTech Institute, Digital Forensics and Emergency Preparedness Institute, Callier Center for Communications Disorders, Center for BrainHealth, and the Institute for Interactive Arts and Engineering. The Natural Science and Engineering Research Laboratory—one of the best interdisciplinary research facilities in the nation—is a four-story, 192,000-square-foot facility that supports collaborative research in fields as diverse as chemistry, biology, physics, electrical engineering, and materials science, and has significantly strengthened the quality and breadth of teaching and research in computer science, electrical engineering, and other fields.

Thoughts on Creating More Tier One Universities in Texas

Testimony by *David E. Daniel*
July 23, 2008

No widely accepted definition for Tier One

Some categories to consider:

- Association of American Universities (AAU)
 - AAU Universities with $\leq 30,000$ students of particular interest for Texas emerging research universities
- Research expenditures > \$100 M per year
- U.S. News and World Report rankings – top 50 publics
 - Combination of numeric criteria and reputation

Association of American Universities

State	AAU University (Year Admitted to AAU)	State	AAU University (Year Admitted to AAU)
AS	The University of Arizona (1985)	MN	University of Minnesota, Twin Cities (1908)
CA	California Institute of Technology (1934)	MO	University of Missouri-Columbia (1908)
CA	University of California, Irvine (1996)	MO	Washington University in St. Louis (1923)
CA	University of California, Los Angeles (1974)	NB	University of Nebraska-Lincoln (1909)
CA	University of Southern California (1969)	NC	Duke University (1938)
CA	University of California, Davis (1996)	NC	University of North Carolina at Chapel Hill (1922)
CA	University of California, San Diego (1982)	NJ	Rutgers, The State University of New Jersey (1989)
CA	University of California, Berkeley (1900)	NJ	Princeton University (1900)
CA	Stanford University (1900)	NY	University at Buffalo, SUNY (1989)
CA	University of California, Santa Barbara (1995)	NY	Cornell University (1900)
CO	University of Colorado at Boulder (1966)	NY	Stony Brook University-SUNY (2001)
CT	Yale University (1900)	NY	Columbia University (1900)
FL	University of Florida (1985)	NY	New York University (1950)
GA	Emory University (1995)	NY	University of Rochester (1941)
IA	Iowa State University (1958)	NY	Syracuse University (1966)
IA	University of Iowa (1909)	OH	Case Western Reserve University (1969)
IL	Northwestern University (1917)	OH	The Ohio State University (1916)
IL	The University of Chicago (1900)	OR	University of Oregon (1969)
IL	University of Illinois at Urbana-Champaign (1908)	PA	University of Pennsylvania (1900)
IN	Indiana University (1909)	PA	Carnegie Mellon University (1982)
IN	Purdue University (1958)	PA	University of Pittsburgh (1974)
KS	The University of Kansas (1909)	PA	The Pennsylvania State University (1958)
LA	Tulane University (1958)	RI	Brown University (1933)
MA	Brandeis University (1985)	TN	Vanderbilt University (1950)
MA	Harvard University (1900)	TX	The University of Texas at Austin (1929)
MA	Massachusetts Institute of Technology (1934)	TX	Texas A&M University (2001)
MD	The Johns Hopkins University (1900)	TX	Rice University (1985)
MD	University of Maryland at College Park (1969)	VA	University of Virginia (1904)
MI	University of Michigan (1900)	WA	University of Washington (1950)
MI	Michigan State University (1964)	WI	University of Wisconsin at Madison (1900)

Source: www.aau.edu

Why Are Tier One Universities Important?

1. Overall economic impact of Tier One Universities
2. Attract key investment capital:
 - Federal research and development (R&D) funds
 - Venture capital funds
3. Attract top talent to Texas and keep top talent in Texas
4. Give Texans access to top quality national research universities

Overall Economic Impact of Tier One Universities

- Example: MIT
 - Alumni have founded more than 4,000 companies employing 1.1 million people and generating \$232 billion in sales – roughly equal to the economic output of Houston or DFW!
 - One great, world-class university can have an economic impact on the order of one great city
- Imagine ---
 - Boston (and Massachusetts) without MIT and Harvard
 - The San Francisco Bay area (and California) without Stanford and UC Berkeley
 - Austin (and Texas) without U. T. Austin

Texas Is Not Attracting Its Share of Investment Capital

- Texas has 8% of the U.S. population but only:
 - 5% of federal research and development (-\$2.8 B per year)
 - 5% of venture capital investment in 2007 (-\$0.9 B per year)
 - Summary: If Texas had its proportional share of federal R&D and venture capital investment, it would gain **\$3.7 B per year**
- Venture capital accounts for 0.2% of GDP but 10% of U.S. jobs and 18% of U.S. business revenue
- Note: In 2006 and in 2007, Austin had more venture capital investment than DFW, Houston, and San Antonio, combined

Sources: Population Data: Population Reference Bureau, 2007 U.S. Population Data Sheet

Federal R&D: 2004 expend., National Sci. Fdn., <http://www.nsf.gov/statistics/nsf07323/tables/tab82.xls>

Venture Capital: pwcmoneytree.com/MTPublic/ns/nav.jsp?page=notice&iden=B

Texas Distribution of VC Data: Mr. Ron Nash's analysis of Dow Jones Venture Source data by area code, 2007

Texas Is Losing College-Age Talent to Other States

- In Fall, 2006:
 - Texas sent 10,163 high school students to doctoral granting universities in other states
 - Texas attracted 4,358 high school graduates from other states to doctoral-granting Texas universities
 - **Texas had a net brain drain of 5,815 high school students to universities in other states in 2006**
- The problem is getting worse – the loss increased by 54% from 2000 to 2006.
- Example of positive impacts from talent importation: 15% of Rice University's undergraduates hail from Harris County, but 33% of its alumni live there

Texas Lags in the Competition for Top Science and Engineering Talent

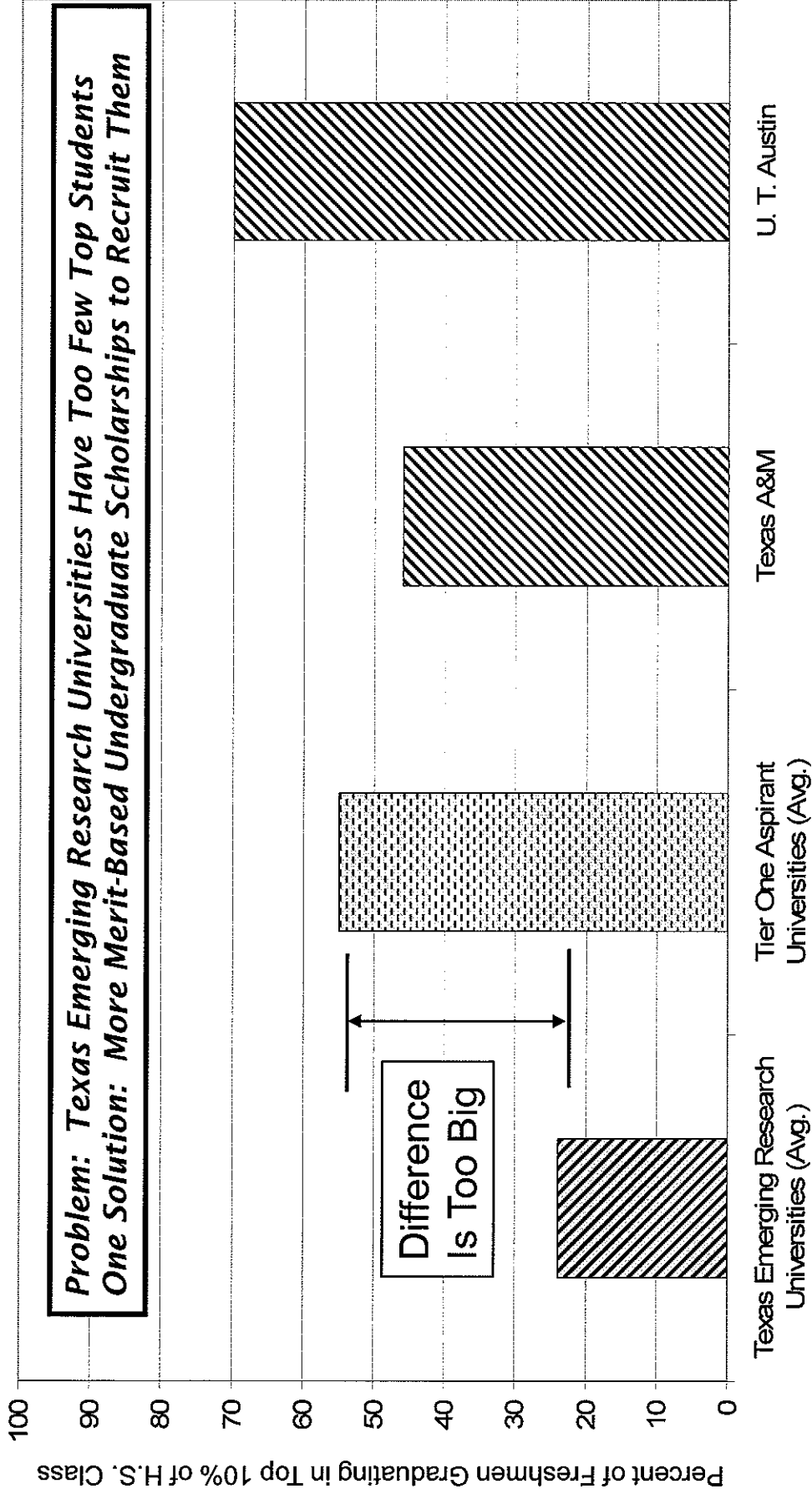
State	New NAE Members	New NAS Members	Total	Percent of Total
California	25	22	47	34 %
Massachusetts	11	15	26	19 %
New York	3	6	9	7%
Texas	2	4	6	4%
All Other States	24	25	49	36%
TOTAL	65	72	137	100%

*Results of 2008 Elections for National Academy of
Sciences (NAS) and National Academy of Engineering (NAE)*

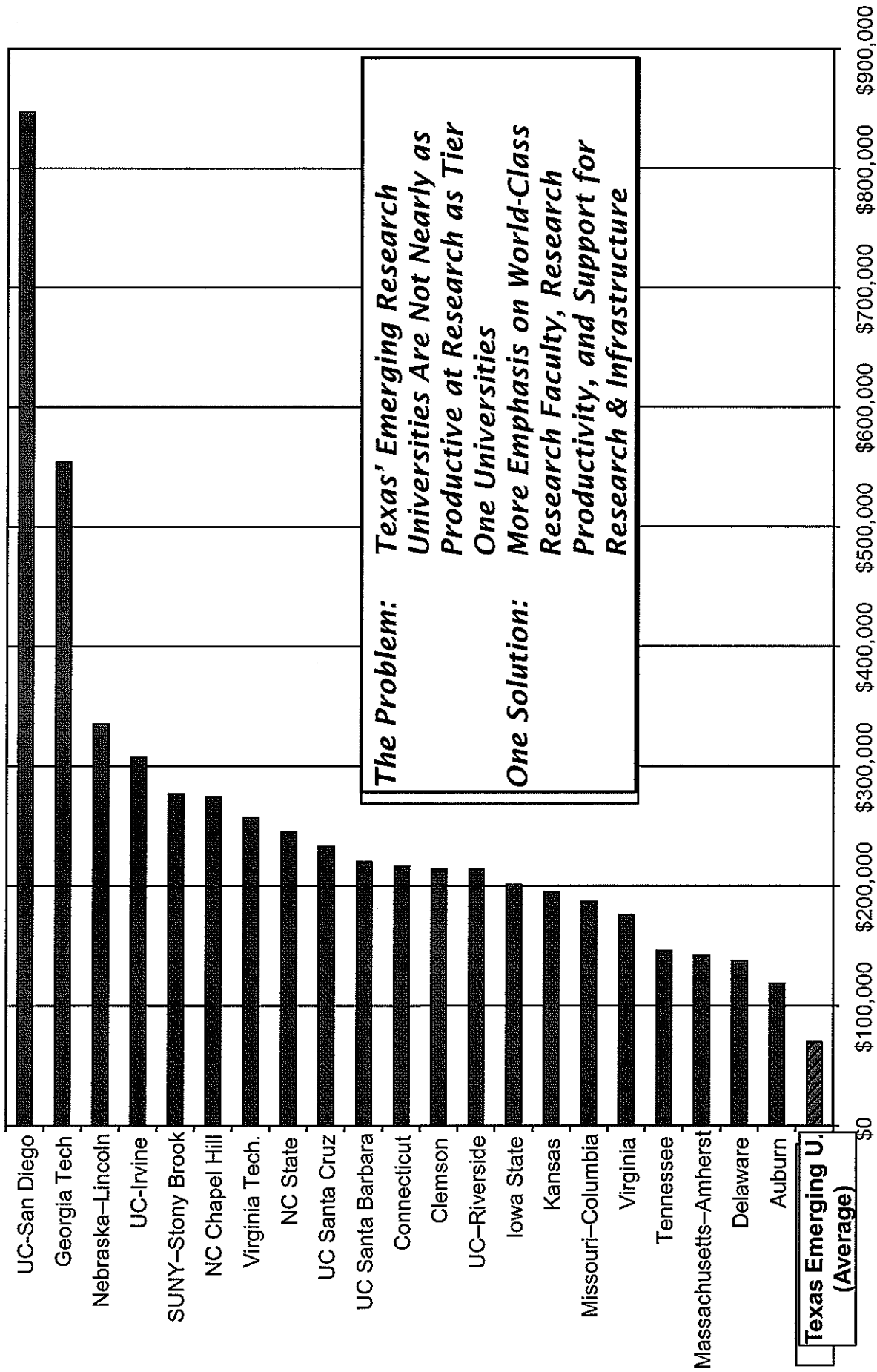
Key Attributes of a Tier One University

1. Undergraduate student quality – indicators include:
 - Top 10% students
 - SAT scores
 - National merit scholars
2. Faculty quality – indicators include:
 - Faculty elected to one of the National Academies
 - Graduate program rankings
3. External Research Expenditures – indicators include:
 - Total funding per year
 - Funding per faculty member per year
4. Alignment with other resources (industry, people, agriculture, medical school, etc.)

An Example of a Tier One Challenge: Undergraduate Student Quality



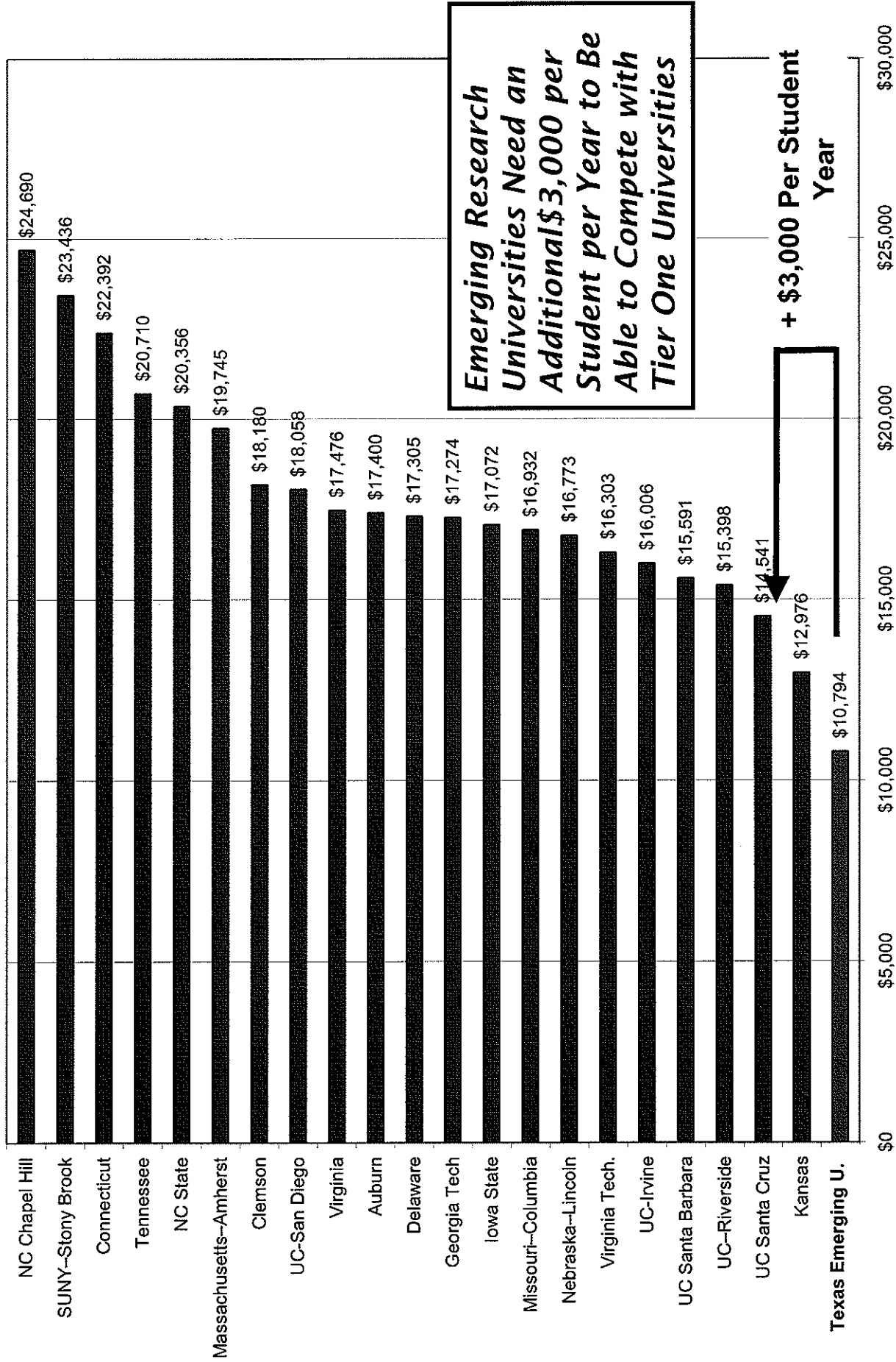
Tier One Challenge: Research Productivity per Faculty Member



Annual Research Funding per Faculty Member

Source: Research funding: National Science Foundation, all research expenditures for 2005-06 academic year
 Number of FTE faculty members: U.S. Department of Education/ IPEDS Enrollment Report and Finance Report for FY2005-06

The Cost: Total Funding (State+Tuition) Per Student Per Year



Suggested Approach – To Start a Dialogue!

1. Suggest an incentive program that includes all 7 Texas emerging research universities – two types of incentives:
 - A. Matching funds for gifts and community support:
 - Student scholarships and fellowships
 - Endowed faculty professorships and chairs
 - Research support (programs, infrastructure)
 - Pipeline programs for at-risk students and critical fields
 - B. Incentive funds for creating a Tier-One profile:
 - Research funding per faculty member
 - Exceptional faculty (National Academy members)
 - Research education for undergraduates

Suggested Approach (continued)

2. Universities would use state funds to pay for the actions necessary to become a Tier One University, e.g., hire more research faculty & support research infrastructure
3. To be effective, state funding must be reasonably steady
 - suggest performance criteria be averaged over 2 years
 - Suggested program assumes that a small set of universities will be more successful in meeting the incentive criteria than the others, but all emerging research universities would be eligible to participate
 - The cost to elevate one emerging research university (average size of 22,000+ students) = \$70 M per year
 - Suggest elevating at least 2 to 3 emerging research universities - eventual cost is \$140 M to \$210 M per year

U. T. Dallas Is Well Positioned and Focused on Science, Engineering, and Research

1. Our focus requires strong undergraduate students:
 - 41% of freshmen in Top 10%
 - SAT scores of freshmen among best in Texas¹
 - National merit scholars 3rd among Texas publics²
 - 4 year graduation rate = 41%

2. Our focus requires strong faculty quality, especially in science and engineering:
 - Faculty members elected to the National Academies (4th in state among publics)³
 - Nobel laureates – 3 in history of UTD, 1 currently
 - Graduate engineering program is ranked 3rd in Texas among publics⁴

¹U.S. News and World Report, 2008 Rankings for Colleges and Universities.

²National Merit Scholar Corporation, 2006-07 Annual Report.

³Web Site Directories, National Academy of Sciences and National Academy of Engineering.

⁴U.S. News and World Report, 2008 Rankings for America's Best Graduate Schools.

U. T. Dallas Is Well Positioned (continued)

3. Our focus requires an institutional profile that emphasizes research and external research funding:
 - Total research expenditures = \$46.5 M in 2007 (expected to be \$56 to \$58 M in 2008)
 - Research funding per FTE faculty member = \$130,000 (3rd among Texas publics)⁵

4. Our focus requires alignment with other resources:
 - Partnerships with businesses, agencies, other institutions, and medical school
 - DFW is a large, vibrant, technology-intensive, globally competitive metropolitan area that needs and can support Tier-One Universities

⁵Research Amount: National Science Foundation, Academic Year 2005-06, All Research Expenditures; FTE Faculty Members: U.S. Department of Education/IPDS Enrollment Report and Finance Report for FY2006-06.

Annual Cost for U. T. Dallas to Be Tier One:

- 11,000 FTE students x \$3,000 =
\$33 million per year

Issues that Could Prohibit or Delay Ascendancy to Tier One:

- We believe that we have the quality and focus needed - we just need to scale up
- We are a growing university, and competition for top students is fierce
- We will need help in constructing research buildings to accommodate growth

Summary

1. Texas needs more Tier One Universities and is paying a price in lost financial opportunity, top talent, and brain drain
2. State funding alone will not be enough to make a Tier One university
3. This proposed program would attract local and national attention --
 - Huge incentive that will increase gifts and endowments
 - Fuel private investment in research capacity
 - Stop the brain drain of students leaving the state
 - Bring more top scientists and engineers to Texas
 - Bring more Federal R&D dollars to Texas
 - Bring more venture capital investment to Texas
 - New discoveries would benefit Texans
 - Addresses need for Texans to have access to more top quality national research universities