Statistical Analysis of University Rankings

William P. Hobby
Jim Granato

Many people from the University of Texas and the University of Houston contributed to this effort including:

Chancellor Mark Yudof
Admiral Bobby Ray Inman
Dean Larry Sager
Dean Ben Streetman
Vice Chancellor H. Keith McDowell
Associate Vice Chancellor Marsha Kelman
Assistant Dean Leslie Oster
Associate Vice Provost Kristi Fisher
Assistant Vice Chancellor Laura Calfee
Professor Renée Cross
Stephanie Eguia
Thanapan Laiprakobsup

How can Texas universities improve their national ranks?

Ranking Sources and Methods

- US News and World Report (USN&WR) mostly (75%) measures undergraduate factors.

- The Center for Measuring University Performance (CMUP) at Arizona State University measures research and graduate factors.

- CMUP measures influence USN&WR measures.

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USN&WR Variables
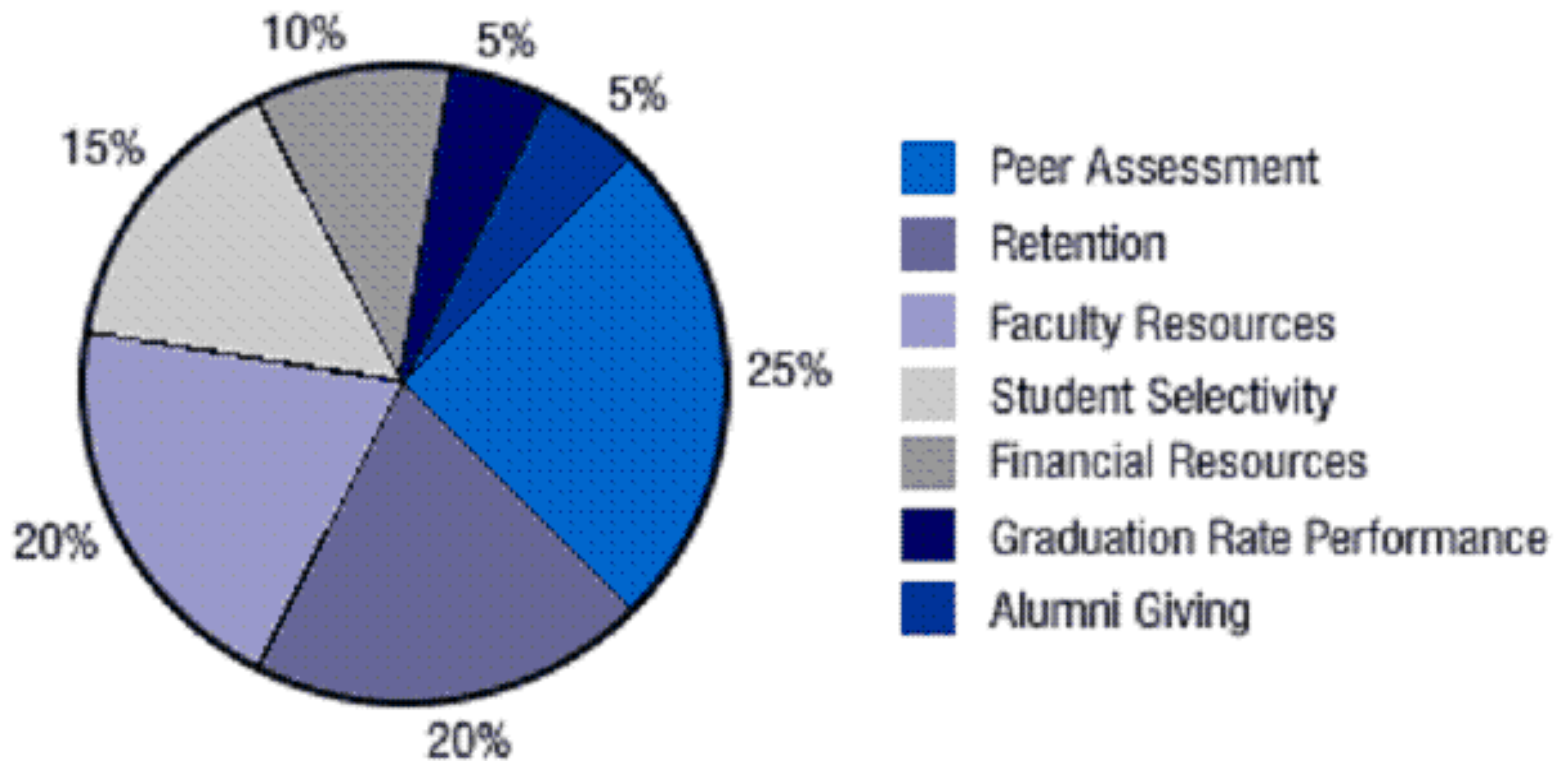
USN&WR Weights: Full Breakdown

FACTOR	%
Peer assessment survey	25.0
Acceptance rate	1.5
High school top 10%	6.0
SAT/ACT scores	7.5
Faculty compensation	7.0
Faculty with top terminal degree	3.0
% Full-time faculty	1.0
Student/faculty ratio	1.0
Class size, 1-19 students	6.0
Class size, 50+ students	2.0
Graduation rate	16.0
Freshman retention rate	4.0
Financial resources	10.0
Alumni giving	5.0
Graduation rate performance	5.0
Total	**100.0**

CMUP Data

- **The nine CMUP measures are summarized into two variables: Top 25 and 26-50. Top 25 is the one that counts.**

- **The nine measures are:**

  - **Total Research $$**
  - **Federal Research $$**
  - **Endowment Assets**
  - **Annual Giving**
  - **National Academy Members**
  - **Faculty Awards**
  - **Doctorates**
  - **Post-Docs**
  - **SAT/ACT Scores**

2007 PEER ASSESSMENT OF COLLEGES AND UNIVERSITIES
<u>National Universities</u>

Each year, *U.S. News & World Report* conducts a survey of undergraduate programs at colleges and universities. The results are used as part of the America's Best Colleges rankings. A list of your peer institutions is listed below by state. This survey is being sent to the president, provost, and dean of admissions at each of these schools. **Your participation in this survey is greatly appreciated**.

Directions for Overall Ratings:

1. Please rate the academic quality of undergraduate programs at the following schools in the national universities category. These schools are major research universities and leading grantors of doctorate degrees.

2. Please review the entire list first, considering each program's scholarship record, curriculum, and quality of faculty and graduates.

3. Using a black pen, rate each school **with which you are familiar** on a scale from marginal (1) to distinguished (5) by marking an "X" in the corresponding box. If you are not familiar with a school's faculty, programs, and graduates, please mark "don't know."

4. **Separate instructions for nominating exemplary undergraduate programs in specialty areas are found on page 10.**

5. Return the completed survey in the postage-paid return envelope to Synovate, Inc. (If you have *misplaced the envelope*, you may return the survey to Angela Foster-Woods, *Synovate,* 222 South Riverside Plaza, Suite 350, Chicago, IL 60606-5809.)

Any questions? Contact the *America's Best Colleges,* help desk at **(800) 408-5365** or **usnews@synovate.net**. Thank you!

RATINGS

Distinguished	Strong	Good	Adequate	Marginal	Don't Know
5	4	3	2	1	

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What is Peer Assessment?

- University presidents, provosts and deans of admission are asked to rate <u>undergraduate programs</u> of other universities 1-5. Like students, administrators don't always follow instructions. The undergraduate variables don't significantly affect Peer Assessment.

- Ranking history and the research, faculty, and graduate programs that make up the CMUP "Top 25" variable DO affect Peer Assessment (academic reputation).
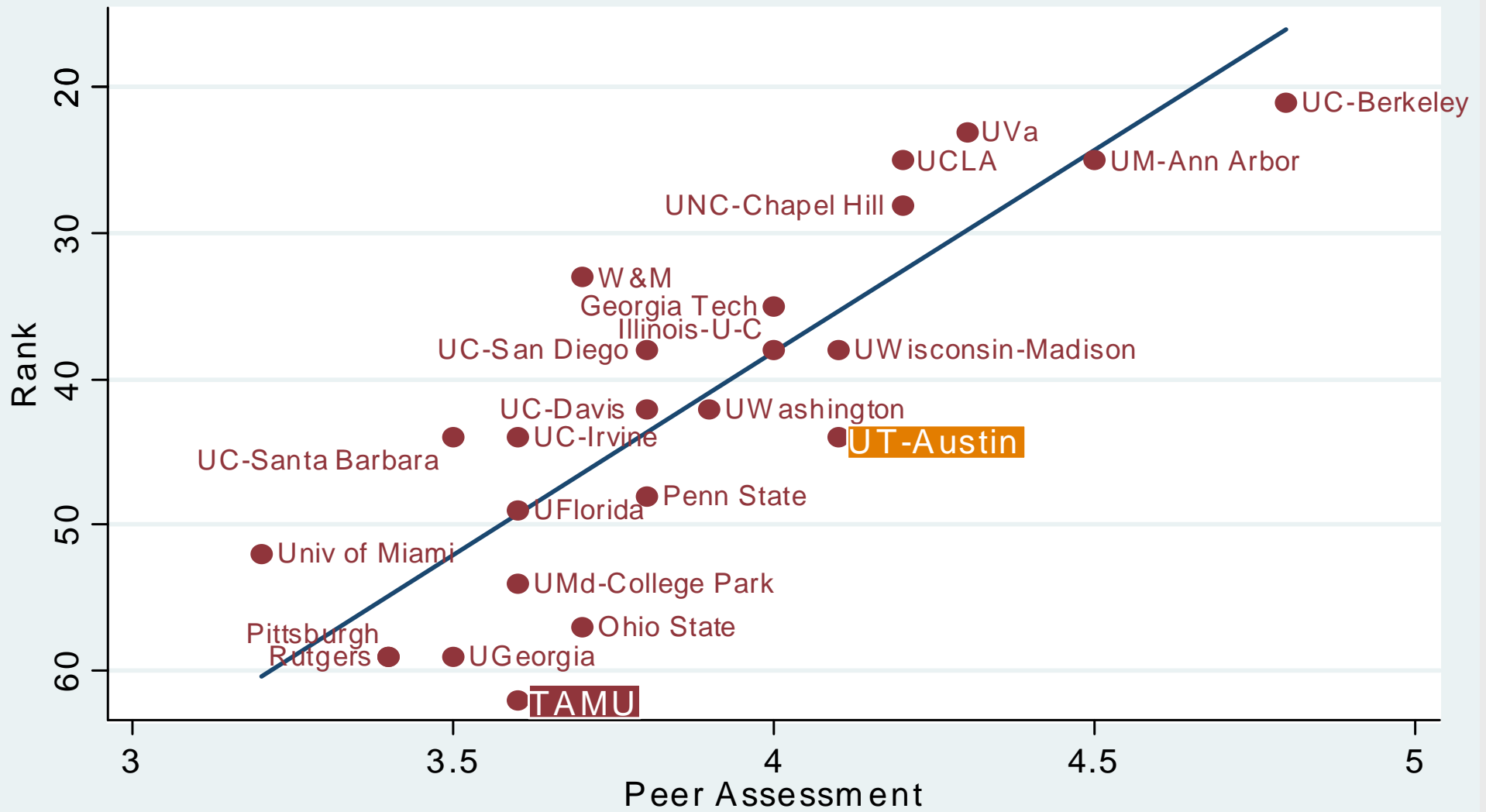
Where do Texas Flagship Schools Rank?

Texas Flagship Ranks

	USN&WR		CMUP	
University	All	Publics	All	Publics
UT-Austin	44	13	30	12
Texas A&M	62	23	32	13

University	RANK	Score	Peer
UC-Berkeley	21	78	4.8
UVirginia	23	74	4.3
UCLA	25	73	4.2
UMichigan-Ann Arbor	25	73	4.5
UNC-Chapel Hill	28	70	4.2
William & Mary	33	65	3.7
Georgia Tech	35	63	4.0
UWisconsin-Madison	38	62	4.1
UC-San Diego	38	62	3.8
UIllinois-Urbana-Champaign	38	62	4.0
UWashington	42	59	3.9
UC-Davis	42	59	3.8
UTexas-Austin	44	58	4.1
UC-Santa Barbara	44	58	3.5
UC-Irvine	44	58	3.6
Penn State	48	57	3.8
UFlorida	49	56	3.6
UMiami	52	54	3.2
UMaryland-College Park	54	53	3.6
Ohio State	57	52	3.7
Rutgers	59	51	3.4
UPittsburgh	59	51	3.4
UGeorgia	59	51	3.5
Texas A&M-College Station	62	50	3.6

What Influences Rank?

The Effect of Peer Assessment on Rank

Coef = 27.78, s.e. = 3.73, t = 7.43

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USN&WR Results: Implications for Texas Flagship School Rankings

- A .2 increase in peer assessment (4.1-4.3) would move UT-Austin from 44th to 35th among all universities and into the top 5 public universities.

- A .5 increase in peer assessment (3.6-4.1) would move Texas A&M from 62nd to 48th among all universities and into the top 10 public universities.

Part 4: A Word on Speed of Change
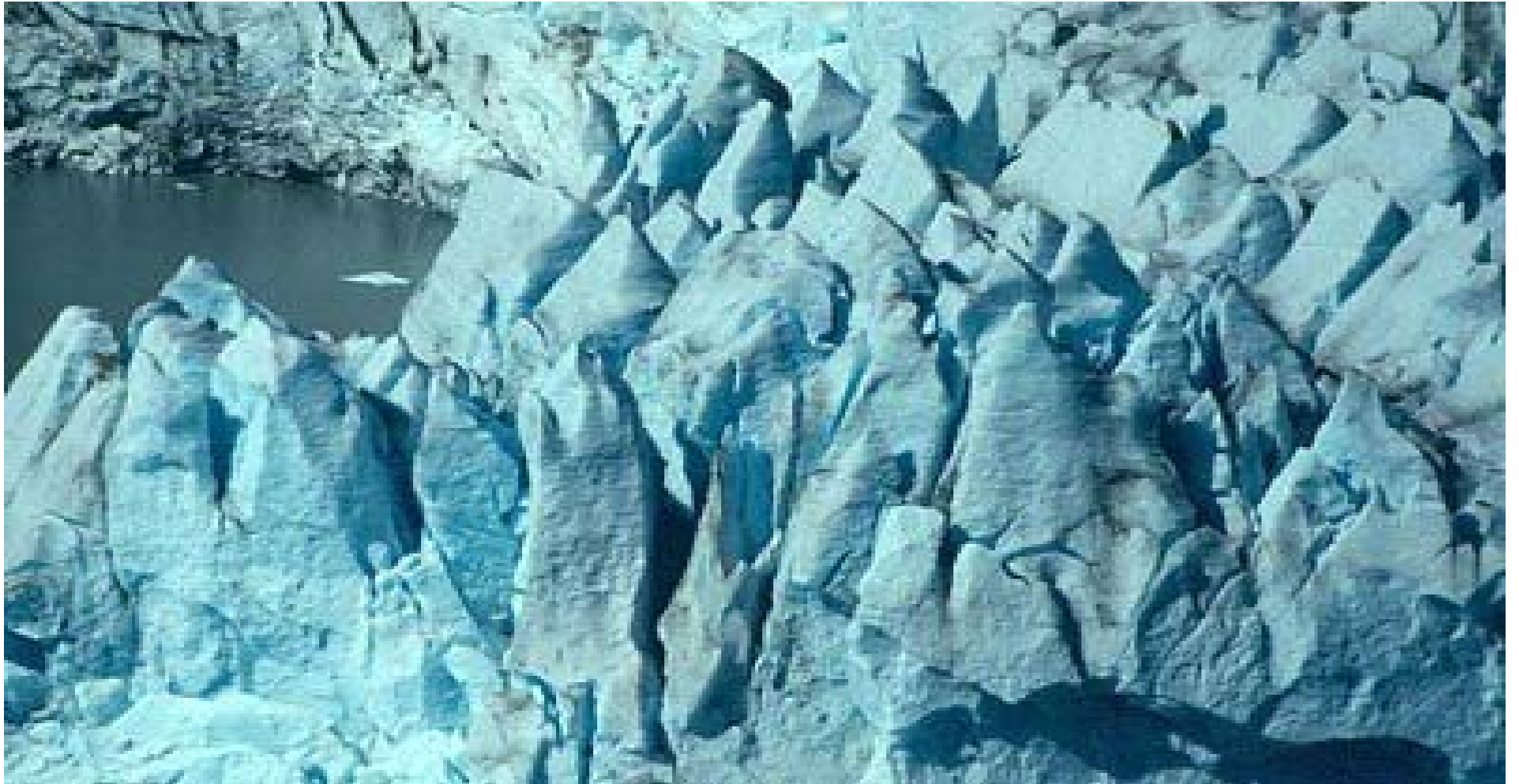
Glacial in Power & Speed!

- **Peer Assessment and Rank change slowly.**

- **From 1999 to 2008 Peer Assessment change averaged .008/year.**

- **From 1999 to 2008 Rank change averaged .38/year.**

Targeted Efforts Can Improve Rank!

There are ways to speed up improvement.

Each CMUP measure added into the Top 25 increases Peer Assessment and therefore Rank at several times the average rate.

CMUP Measures, Rank

| Measure	UT-Austin Rank	Texas A&M Rank
Total Research $$‡	34	23
Federal Research $$‡	31	51
Endowment	6*	8
Annual Giving	29	28
Academy Memberships	18	41
Faculty Awards	23	131
PhDs Granted	4	17
Post-Docs	68	47

‡UT-Austin not comparable (medical schools)

UT-Austin Data

- State Support + Tuition and Fees Per Student

- Funding per FTE Student v. Student Faculty Ratio

- Federal Research $$

- Federal Research $$, Rank by Discipline

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State Support + Tuition & Fees Per Student

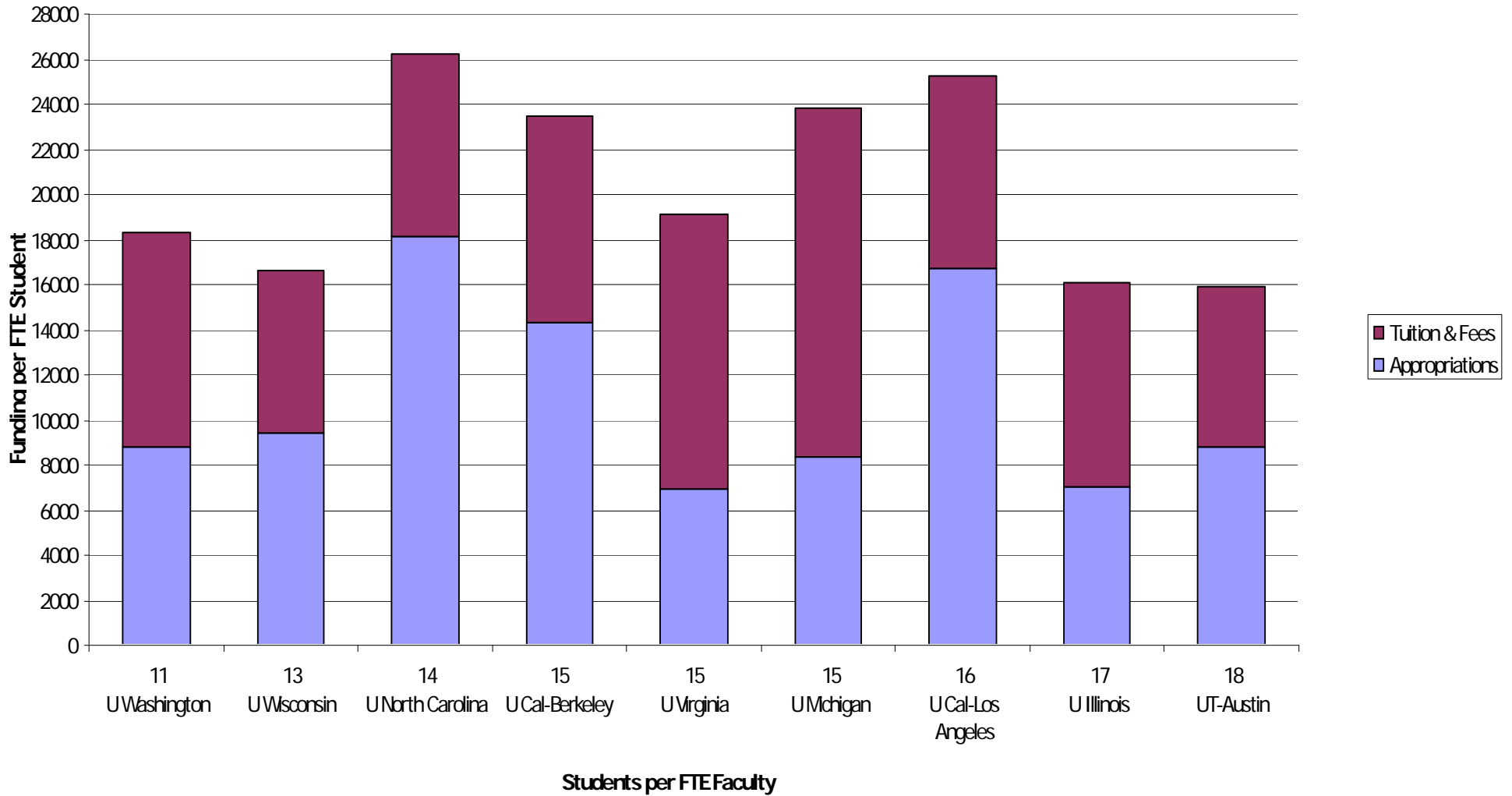STATE APPROPRIATIONS PLUS TUITION & FEE REVENUE PER FTE STUDENT
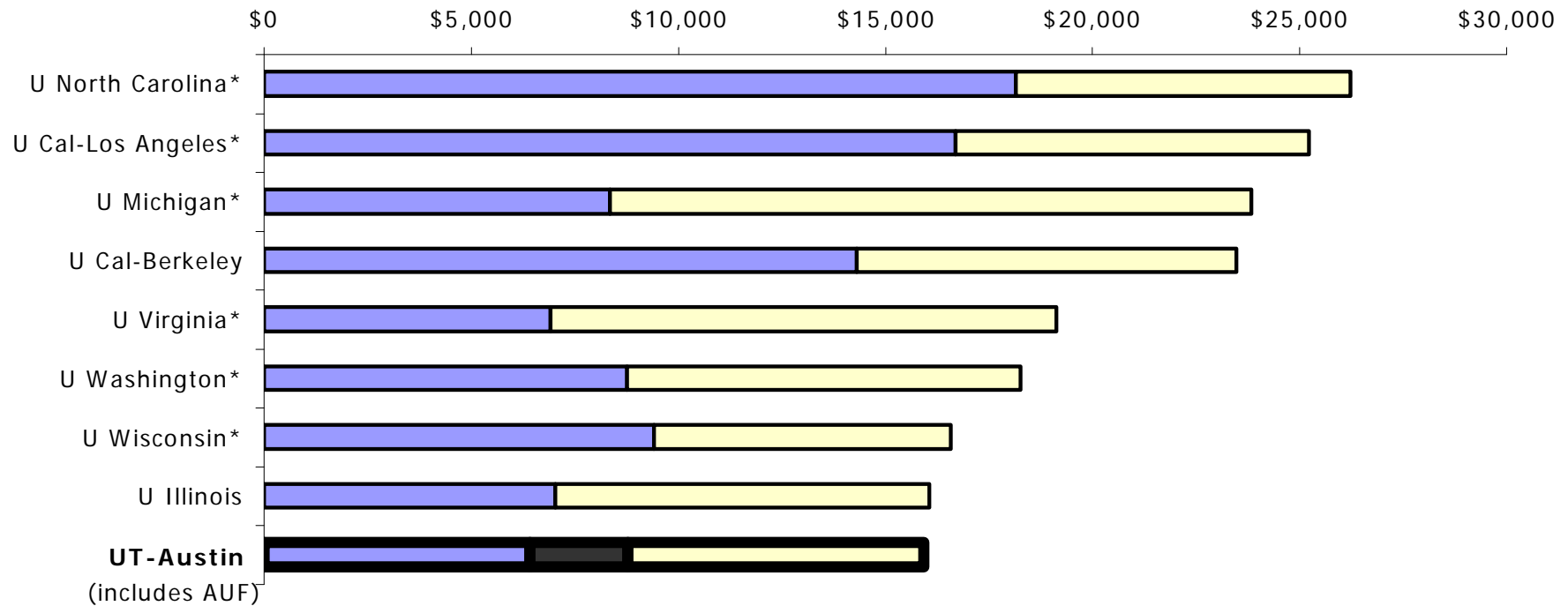
*Institution with a Medical School
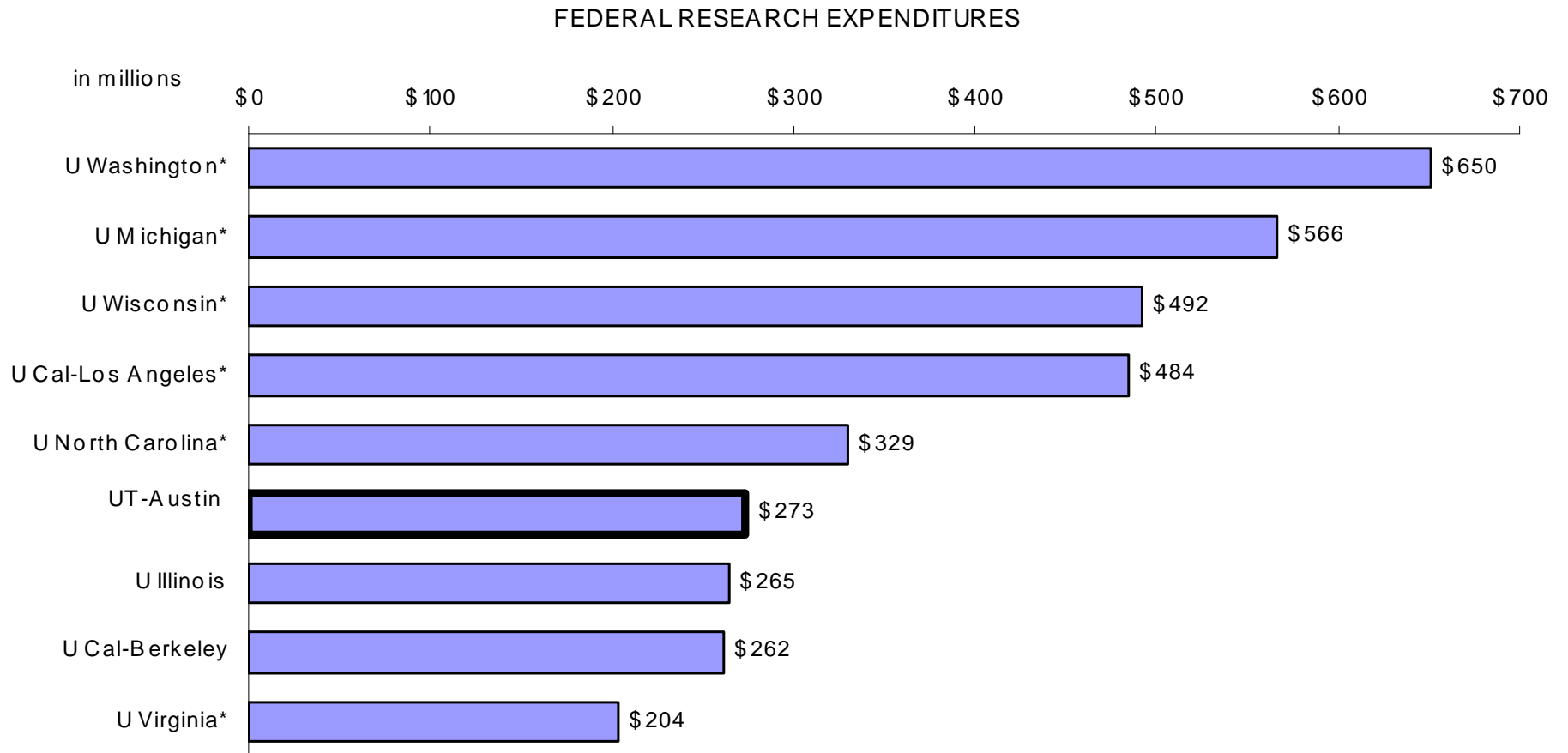
Legend: State Appropriations, AUF, Tuition & Fees

UT-Austin does well compared to other state universities that get more money.

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Funding per FTE Student v. Student Faculty Ratio
Fiscal Year 2006

Federal Research $$

UT-Austin is first among public peer universities without a medical school to earn the big bucks!

FEDERAL RESEARCH EXPENDITURES

in millions

	$0 $100 $200 $300 $400 $500 $600 $700
U Washington*	$650
U Michigan*	$566
U Wisconsin*	$492
U Cal-Los Angeles*	$484
U North Carolina*	$329
UT-Austin	$273
U Illinois	$265
U Cal-Berkeley	$262
U Virginia*	$204

*Institution with a Medical School

Federal Research $$ Rank by Discipline

- **UT-Austin** is 1st in mathematics, 2nd in engineering and physical & computer sciences, 4th in environmental & social sciences, 6th in psychology, 8th in life sciences.

- **UT-Austin** is 2nd to Wisconsin-Madison in research $$ by discipline, but 1st among universities without a medical school. Many psychology and life science $$ go to medical schools.

FEDERAL RESEARCH EXPENDITURES RANK BY DISCIPLINE

	Engr	Phys	Enviro	Math	Comp	Life	Psych	Social	RANK
U Wisconsin*	6	4	2	5	3	4	1	3	28
UT-Austin	2	2	4	1	2	9	6	4	30
U Michigan*	1	7	7	6	7	3	2	1	34
U Cal-Los Angeles*	7	3	6	3	4	2	3	6	34
U Washington*	5	6	1	4	8	1	4	7	36
U Illinois	3	5	3	7	1	8	5	8	40
U Cal-Berkeley	4	1	8	2	9	7	8	5	44
U North Carolina*	8	8	5	8	5	5	9	2	50
U Virginia	9	9	9	9	6	6	7	9	64

*Institution with a Medical School

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What to Do?
Raise Texas UP!

Texas UP!

- "TexasUP!" happens if UT-Austin and Texas A&M raise their "26-50" measures UP! to the Top 25.

- Each additional measure in the Top 25 should, over time, increase Peer Assessment .1.

What to do? Raise Texas UP!

If **UT-A** and **Texas A&M** raised their "26-50" measures to Top 25 (TexasUP!) the CMUP ranks would improve.

	Now	TexasUP!
UT-A	27	10
TAMU	27	15

What it would take: UT-Austin

Measure by Rank	UT-Austin	Rank minus 25	Needed to = #25
Annual Giving	29	4	$23,771
TexasUP!		15*	($ x 1,000)

UT-Austin could raise TexasUP! by boosting Annual Giving 15 Ranks.

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UT-Austin UP!

- As a result of this study, UT-Austin will move UP! to Top 25 (from 36th to 6th) in CMUP Endowment Rank. In time this improvement should increase Peer Assessment .10.

What it would take: Texas A&M

Measure by Rank	Texas A&M	Rank minus 25	Needed to = #25
Annual Giving	28	3	$19,527
# Academy Memberships	41	16	14
# Post-Docs	47	22	174
TexasUP!		41	($ x 1,000)

Texas A&M could raise TexasUP! by boosting three measures 41 Ranks.

Summary

- Peer A$$e$$ment, 25% of the USN&WR rank, gives the biggest bang for the buck. It is driven by research $$, endowment, academy memberships, and doctorates granted.

- Money spent on outstanding faculty that win the research grants and the prizes is the best investment. The correlation between research $$ and Academy Membership = .65.

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The mark of a truly educated man is to be moved deeply by statistics.

George Bernard Σhaw