States' Methods of Higher Education Funding

June 2012

SRI International

Annual Percentage Changes in State Appropriations for Higher Education per Full-Time Equivalent (FTE) Student and Changes in Inflation-Adjusted Tuition and Fees at Public Four-Year Institutions, 1980-81 to 2010-11

College Board. *Trends in Higher Education. 2011*
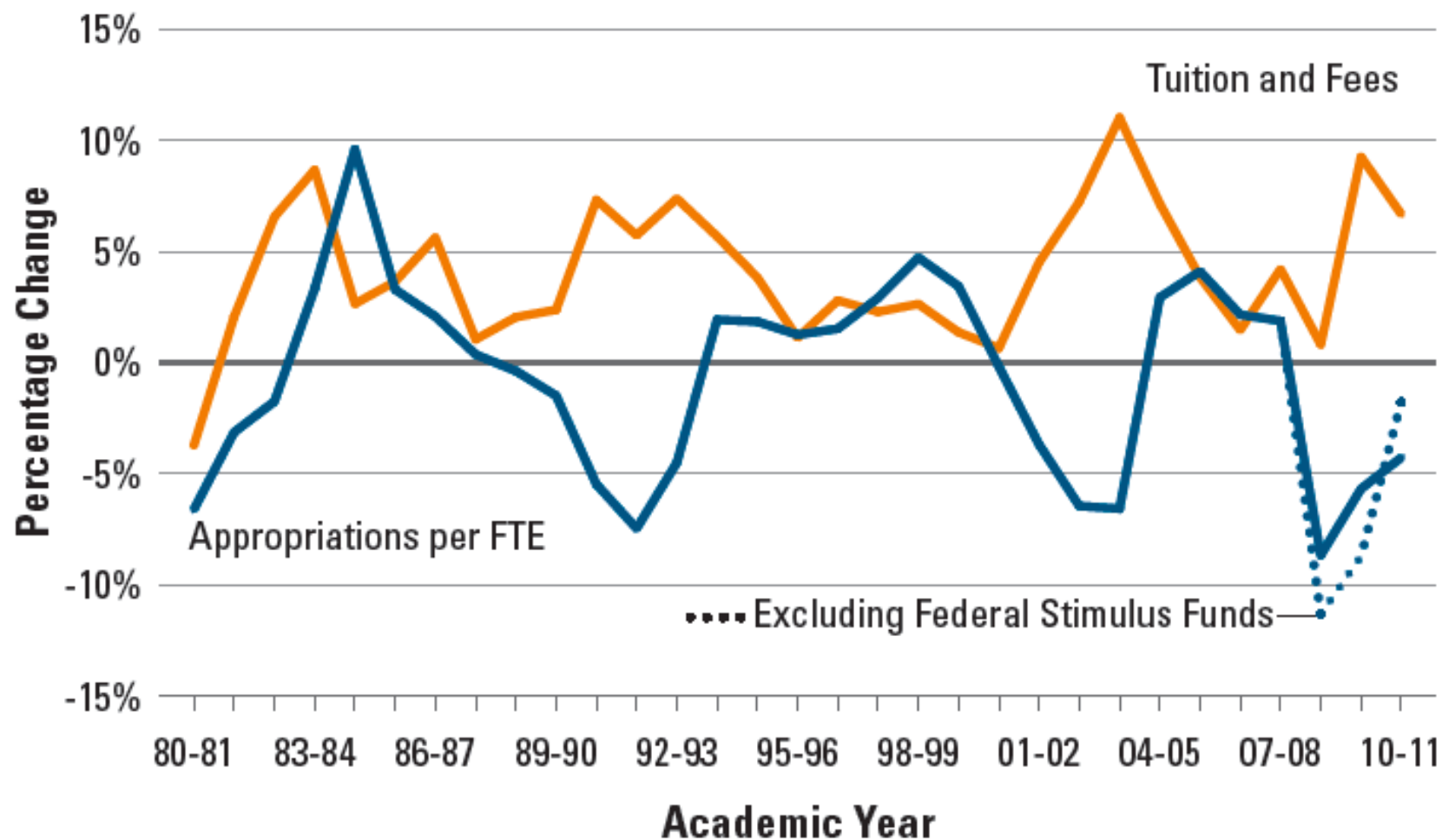
State funding of higher education

- State appropriations
  - Formula-based
  - Lump sum
  - Base plus/minus
  - Hybrid

- Student-derived revenues
  - Tuition
  - Fees

- Other revenues
  - Indirect cost recovery on research grants, etc.
  - Gifts

State appropriations

Formula
- Grey → currently use
- Red → recently dropped

Non-Formula
- Un-shaded states

State fund higher education by

Non-Formula

Base plus/minus

Formula

Colorado
(enrollment factor)
Kansas
(performance
agreements)
Utah (COLA)
New Mexico
(performance)

Lump

Alaska
California (UC)
Delaware
Hawaii
Illinois
Iowa
Kentucky
Maryland
Missouri

Montana
Nebraska
New
Hampshire
Wisconsin

Lump

Maine
Michigan
New Jersey (4 years)
New York
North Dakota
Oklahoma
Rhode Island
South Dakota
Vermont
Washington (4 years)
West Virginia
Wyoming

State funding formula components

Instruction

O&M / Physical Plant

Academic Support

Library support

Student Services

Institutional Support

Public Service

Research

Different formulas for different missions

- **Alabama** –
  - Senior Institutions – Faculty salary and dept. admin cost x semester credit hour x *academic weights*
  - Community college - *median regional state appropriation* per FTE x 3-yr Avg Fall FTE
  - Technical college - *Adjusted Expense Rate* x 3-Yr Average Fall FTE
- **Virginia** – Same formula components, different weights on the formula components for each institution type
  - Research - UVA, VCU, VT
  - Doctoral - CWM, ODU, GMU
  - Master's/Comprehensive - JMU, RU, NSU, VSU, LC, CNU
  - Baccalaureate - VMI, MWC, UVA-Wise
  - Two-Year - RBC, VCCs

Different formulas for different missions

- **Texas** – different parts of the formula
  - General academic institutions – instruction + O&M
  - Health-related institutions – instruction + research + O&M
  - Community colleges – just instruction
  - Technical colleges – instruction + O&M

- Recognizing that different institutions have different missions is a wide-spread practice, and can be considered a best practice.

Different formulas for different missions

- **Tennessee –** different weights for each individual institution dependent on their mission.

Weights Based on Institutional Mission	APSU	UTM	TTU	UTC	MTSU	ETSU	TSU	UM	UTK
Student Progression: 24 Credit Hours	3%	3%	3%	3%	3%	3%	3%	2%	2%
Student Progression: 48 Credit Hours	5%	5%	5%	5%	5%	5%	5%	3%	3%
Student Progression: 72 Credit Hours	7%	7%	7%	7%	7%	7%	7%	5%	5%
Bachelors Degrees	30%	30%	25%	25%	25%	25%	25%	25%	15%
Masters Degrees	15%	15%	15%	15%	15%	15%	15%	15%	15%
Doctoral/Law Degrees	0%	0%	5%	5%	5%	7.5%	7.5%	10%	10%
Research/Grant Funding	10%	10%	10%	10%	10%	12.5%	12.5%	12.5%	15%
Student Transfers	10%	10%	10%	10%	10%	5%	5%	5%	5%
Degrees per 100 FTE	15%	15%	10%	10%	10%	10%	10%	10%	10%
Graduation Rate	5%	5%	10%	10%	10%	10%	10%	12.5%	20%
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Bachelors degrees; little research/doctoral degrees

Extensive doctoral degrees and emphasis on research

40% premium for the production of certain outcomes by a low-income or adult student.

State funding formula components: Instruction

Salary driven

- Credit hours → FTE student → Faculty positions
- Transformation ratio depend on a variety of factors:
  - Undergraduate vs. Master's vs. Doctoral
  - Lower and upper undergraduate
  - Discipline
  - Cost basis (low vs. high vs. clinical)
- Faculty positions multiplied by set amount including:
  - Average faculty salary
  - Average regional peer salary
  - Salary schedules
- NV's current formula uses salary schedule

State funding formula components: Instruction

Current NV formula ratios

Recommended Student Faculty Ratios for the Universities

	Lower Div	Upper Div	Masters	Doctoral
Clinical	8	8	8	8
High Cost	18	13	10	8
Medium Cost	21	16	13	8
Low Cost	26	22	16	8

Recommended Student Faculty Ratios for Nevada State College

	Lower Div	Upper Div	Masters
Clinical	8	8	8
High Cost	18	15	12
Medium Cost	21	18	15
Low Cost	26	24	18

State funding formula components: Instruction

Current NV formula ratios

Recommended Student Faculty Ratios for remaining colleges

Discipline	TMCC & CCSN	WNCC	GBC Lower Division	GBC Upper Division
High Cost Programs	14	12	12	12
Medium Cost Programs	21	21	21	16
Low Cost Programs	26	26	23	22

State funding formula components: Instruction

Virginia

- The formula defines an FTE as all of the students in full-time standing (taking 12 or more credit hours) plus one-third of the part-time students.
- FTEs **x** matrix **x** average faculty salary

Discipline	Lower	Upper	Master's/ Professional	Doctoral
Group 1				
Area Studies	24	18	11	9
Business & Management	24	18	11	9
Interdisciplinary Studies	24	18	11	9
Library Science	24	18	11	9
Military Science	24	18	11	9
Public Affairs	24	18	11	9
Social Sciences	24	18	11	9
Study Abroad	24	18	11	9
Group 2				
Communications	20	14	10	8
Education	20	14	10	8
Home Economics	20	14	10	8
Letters	20	14	10	8
Mathematics	20	14	10	8
Psychology	20	14	10	8
Group 3a				
Agric. & Natural Resources	18	11	9	7
Arch. & Env. Design	18	11	9	7
Computer /Info. Sci.	18	11	9	7
Fine and Applied Arts	18	11	9	7
Foreign Languages	18	11	9	7
Bus. & Com. Tech.	18	-	-	-
Data Processing Tech.	18	-	-	-
Public Serv. Tech.	18	-	-	-
Remedial Education	18	-	-	-
Group 3b				
Biological Sciences	18	11	8	6
Engineering	18	11	8	6
Physical Sciences	18	11	8	6
Group 4				
Health Professions'	12	10	7	5
Pharmacy	-	-	6	-
Health & Paramed. Tech.	10	-	-	-
Other				
Mech. & Engr. Tech.	13	-	-	-
Natural Science Tech	14	-	-	-
Law	-	-	17	-

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State funding formula components: Instruction

- Student credit hours **x** cost relative matrix or cost-based matrix.
- Similar to salary-base calculations; however, student credit hours are transformed into funding amounts based on cost, i.e. in **Ohio.**
- **Ohio** – "resource allocation model" collects faculty salaries/ course taught (FTE) + dept. support cost/FTE = cost per FTE
- Other cost matrixes use a ratio of cost, much like salary-based method.
- The resulting matrix is multiplied by a legislative set price in **Texas, Oregon, Idaho**.
- **Texas** - the basis for the weights per discipline is calculated from aggregation of actual costs based on institutions' Annual Financial Reports.

State funding formula components: Instruction

Formula Inputs

The NSHE proposed formula also uses this method of using student credit hours weighted by cost-ratio matrix multiplied by a set price based on the legislature appropriation.

State funding formula components: Instruction

- Example: Oregon average state share of cost for one FTE student set in 1999 – rises with inflation **x** matrix **x** FTE

CIP levels		Freshman Sophomore	Junior Senior	Master	PhD
01	Agricultural Business	3	3	3	2
02	Agricultural Sciences	3	3	3	2
03	Conservation	1	1	1	1
04	Architecture	3	3	2	1
05	Area, Ethnic, Cultural Studies	1	1	1	1
09	Communications	2	2	2	2
10	Communications Technologies	2	2	2	1
11	Computer and Information Science	2	2	3	3
13	Education	2	2	1	2
14	Engineering	3	3	3	3
15	Engineering-Related Technology	3	3	3	1
16	Foreign Languages and Literature	1	1	2	1
19	Home Economics	2	2	2	2
22	Law and Legal Studies	4	4	4	4
23	English Language and Literature	1	1	2	2
24	Liberal Arts and Sciences, Humanities	1	1	1	1
25	Library Science	2	2	1	1
26	Biological Sciences, Life Sciences	2	2	3	2
27	Mathematics	1	1	3	2

Instruction: Cost Matrix

NSHE proposed funding formula

Discipline Cluster	Lower Division	Upper Division	Master's	Doctoral
Liberal Arts, Math, Social Science, Languages, Other	**1.0**	**2.0**	**4.0**	**5.0**
05. Area, Ethnic, Cultural & Gender Studies	1.0	2.0	4.0	5.0
09. Communication, Journalism & related programs	1.0	2.0	4.0	5.0
16. Foreign Languages, Literature and Linguistics	1.0	2.0	4.0	5.0
19. Family & Consumer Sciences/Human Sciences	1.0	2.0	4.0	5.0
23. English Language & Literature/Letters*	1.0	2.0	4.0	5.0
24. Liberal Arts & Sciences, General Studies	1.0	2.0	4.0	5.0
25. Library Sciences	1.0	2.0	4.0	5.0
27. Mathematics & Statistics*	1.0	2.0	4.0	5.0
28. Reserve Officer Training Corps	1.0	2.0	4.0	5.0
29. Military Technologies	1.0	2.0	4.0	5.0
30. Multi/Interdisciplinary Studies	1.0	2.0	4.0	5.0
38. Philosophy & Religious Studies	1.0	2.0	4.0	5.0
42. Psychology & Applied Psychology	1.0	2.0	4.0	5.0
45. Social Sciences	1.0	2.0	4.0	5.0
54. History	1.0	2.0	4.0	5.0
99. Honors Curriculum and other	1.0	2.0	4.0	5.0
Basic Skills	**1.5**	**n/a**	**n/a**	**n/a**
32. Basic Skills				
Business	**1.0**	**2.0**	**4.0**	**6.0**
44. Public Administration & Social Services	1.0	2.0	4.0	6.0
52. Business Mgmt, Marketing & related services	1.0	2.0	4.0	6.0
Education	**1.5**	**2.0**	**2.5**	**5.0**
13. Education	1.5	2.0	2.5	5.0
Services	**1.5**	**2.0**	**3.0**	**4.0**
31. Parks, Recreation, Leisure & Fitness Studies	1.5	2.0	3.0	4.0
12. Personal & Culinary Services	1.5	2.0	3.0	4.0
43. Security & Protective Services	1.5	2.0	3.0	4.0
Visual and Performing Arts	**1.5**	**2.5**	**5.0**	**5.0**
50. Visual and Performing Arts	1.5	2.5	5.0	5.0
Trades/Tech	**2.0**	**2.5**	**n/a**	**n/a**
46. Construction Trades	2.0	2.5	n/a	n/a
47. Mechanic Repair Technologies/Technicians	2.0	2.5	n/a	n/a
48. Precision Production	2.0	2.5	n/a	n/a
49. Transportation & Materials Moving	2.0	2.5	n/a	n/a
Sciences	**2.0**	**3.0**	**5.0**	**8.0**

State funding formula components: Instruction

Best practices

- **Enrollment:** All of these formulas except for Tennessee and Ohio are driven by enrollment, which incentivizes access, but has not incentivized completion.

- **Cost-based**: The practices are complex, and there appears to be no true best practice.   They are resource intensive to produce and quickly may go out of date. They do not align with policy goals such as increased outputs.

Instruction: Remedial education

- Explicitly in Illinois and Florida state's community college instruction formulas.

- Alabama counts the input hours at 115%

- **Correction to the deliverable**: the NSHE proposed plan does not weight remedial education, as incorrectly stated.

O&M of physical plant

Two ways: actual sq. feet versus predicted need

- AL, GA, IL, LA, MN, PA, SC – fund square feet
- Nevada's current formula, like many states, is solely dependent on actual square-footage with weighting due to age of the building.

Predicted space needs:

- Virginia
  - O&M funded as a percentage of instruction calculation
- Texas: Space projection models
  - Number, program, and level of semester credit hours
  - Number of faculty, non-faculty, students, programs, and library holding
  - Research expenditures
  - Instruction and operation formula calculation

The rest…

- Academic Support - % of instruction
  - AL, FL, GA, LA, MN, NC, PA, VA
  - Nevada's current formula for academic support is based partly on the number of FTE faculty members and staff members, number of library volumes, and the instruction budget with some institutional based adjustments.

- Library support – enrollment, headcount, volumes
  - AL, AR, FL, GA, MN, NC, TX
  - Nevada's current formula funds library support within its academic support formula.

The rest…

- Institutional Support – cost, % of instruction
  - FL, GA, NC, PA, VA
  - Nevada's current funding formula funds institutional support at a specific percentage of operating budget, with the percentage level dependent on total operating budgets

- Public Services
  - Very low percentage: FL(CC), GA, NC, PA, VA
  - Neither the NV current formula or the proposed funding formula have a public service budget function.

The rest...

- Student Services
  - States that employ this category in their funding formula calculate funding levels either as a percentage of instructional cost (i.e. Georgia), on headcount, or enrollment (i.e. Alabama and Virginia),
  - AL (Sr), FL (CC), GA, NC, PA (Sr), VA
  - Nevada's current formula for student services support is based on combined headcount and FTE enrollment; however, it does provide more money per FTE for the smaller institutions due to economies of scale for the larger institutions

The rest…

- Research – % of instruction, % of sponsored research
  - AL (senior institutions), AR, FL, GA, MN, SC, TX (health only)
  - Current formula allocates all indirect cost recovery (since 2005).
  - Proposed formula "research factor": The model assigns higher costs to upper-division and graduate instruction at the state's two research universities since the research mission requires faculty time away from the classroom and administrative infrastructure to support research.

Things are relative

- No state has fully funded it formula.

- Cost matrixes are approximate at best.

- Once the money is allocated, institutions can do whatever they want with it.

- States fund various off-formula priorities in ad hoc ways

- Some states have implemented output-based funding along with cost-reimbursement. Tennessee has made the switch to all output-based funding.

Performance pool implementation

States using performance criteria	Implementation	Institutional Base Funding or Bonus
Florida (2-year institutions only)	1%-2% - fix amount allocated ~$12 million.	Bonus with plans to move to institutional base funding
Indiana	5% of total state appropriation	Institutional base funding
Kansas	New money	Bonus
Louisiana	25 percent of institutional operating budgets when fully implemented	Institutional base funding
New Mexico	New money	Bonus
Ohio	100% of formula directed funding – though actual implementation varies based on institution.	Institutional base funding
Pennsylvania	2011 revision sets the performance pool at 2.4 %of PASSHE's total Education and General appropriation. This is equivalent to 8 percent of the Fiscal Year 2011 state appropriation for institutions.	Institutional base funding
Tennessee	Phase-in over 4 years to 100%	Institutional base funding
Texas	$80 million in 2009	Bonus
Washington (2-year institutions)	<1% - fix amount allocated $1.8 million - part of institutional base funding	Bonus

Nevada's Higher Education Funding Model

Goals: Diversification and Innovation

- Diversify into new targeted economic sectors beyond existing strengths

- Foster a climate of innovation favorable to SMEs and start-ups

Instruments: Higher Education and Workforce Development

- Prepare students for jobs in demand

- Support business innovation

Nevada's Higher Education Funding Model

Challenges: Alignment and Performance

- Align programs and research around the economic development goals of the state

- Significantly improvement performance.

Constraints: Resources and Students

- Limited general fund resources in the future
- Significant population of poorly prepared students

Nevada's Higher Education Funding Model

Institutional practices and financial incentives that meet these challenges, given existing constraints

Practices and incentives that embody a philosophical shift in higher education funding

Nevada's Higher Education Funding Model

About half of the states use formulas, driven by **cost estimates** (except Ohio and Texas)

Half provide lump sum payments—**cost plus**

However, should higher education be paid based on its costs?

Or paid based on what is produces?

Who are the customers for these products?

Nevada's Higher Education Funding Model

- States pay for outcomes they value-**performance pool**
- Students pay for programs and degrees they value-**differential fees and tuition**

Where does this leave the base formula in NSHE's alternative proposal?

A short term measure as Nevada completes this philosophical shift

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Nevada's Higher Education Funding Model

Achieving Alignment

- Produce graduates with mid-level skills in targeted sectors (across all NSHE institutions)

- Grant two year colleges significant autonomy, local governance, and local revenues

- All NSHE institutions should be rewarded for graduates with STEM, allied health, and degrees aligned around targeted sectors.

Nevada's Higher Education Funding Model

Achieving Alignment (continued)

- Align research support around targeted sectors and innovation

- Fund research through a separate pathway (**Knowledge Fund)** with dedicated revenues

- Provide baseline financial support to institutions with (in part) specialized economic development missions

- Professional schools on their own bottom. In-state students provided direct support (scholarships

Nevada's Higher Education Funding Model

Improving Performance

- Support and rewards remedial success

- Achieve seamless articulation among institutions

- Reward institutions for producing more graduates in less time

- Adopt independent measures of quality

Nevada's Higher Education Funding Model

Performance Metrics: UNR and UNLV

- B.A., M.A. and PhD graduates (*medium, different values*)

- STEM, allied health & targeted ED graduates (*medium*)

- 6 year graduation rates (CCA approach) *(heavy)*

- Remedial student progress metric *(light)*

- At-risk student graduates *(light)*

Nevada's Higher Education Funding Model

Performance Metrics: NSC

- Associate and B.A. graduates (*medium, different values*)

- STEM, allied health & targeted ED graduates (*medium*)

- 6 year graduation rates (CCA approach) *(heavy)*

- Student progress metric *(light)*

- Student credit accumulation metric *(medium)*

- At-risk student graduates *(light)*

Nevada's Higher Education Funding Model

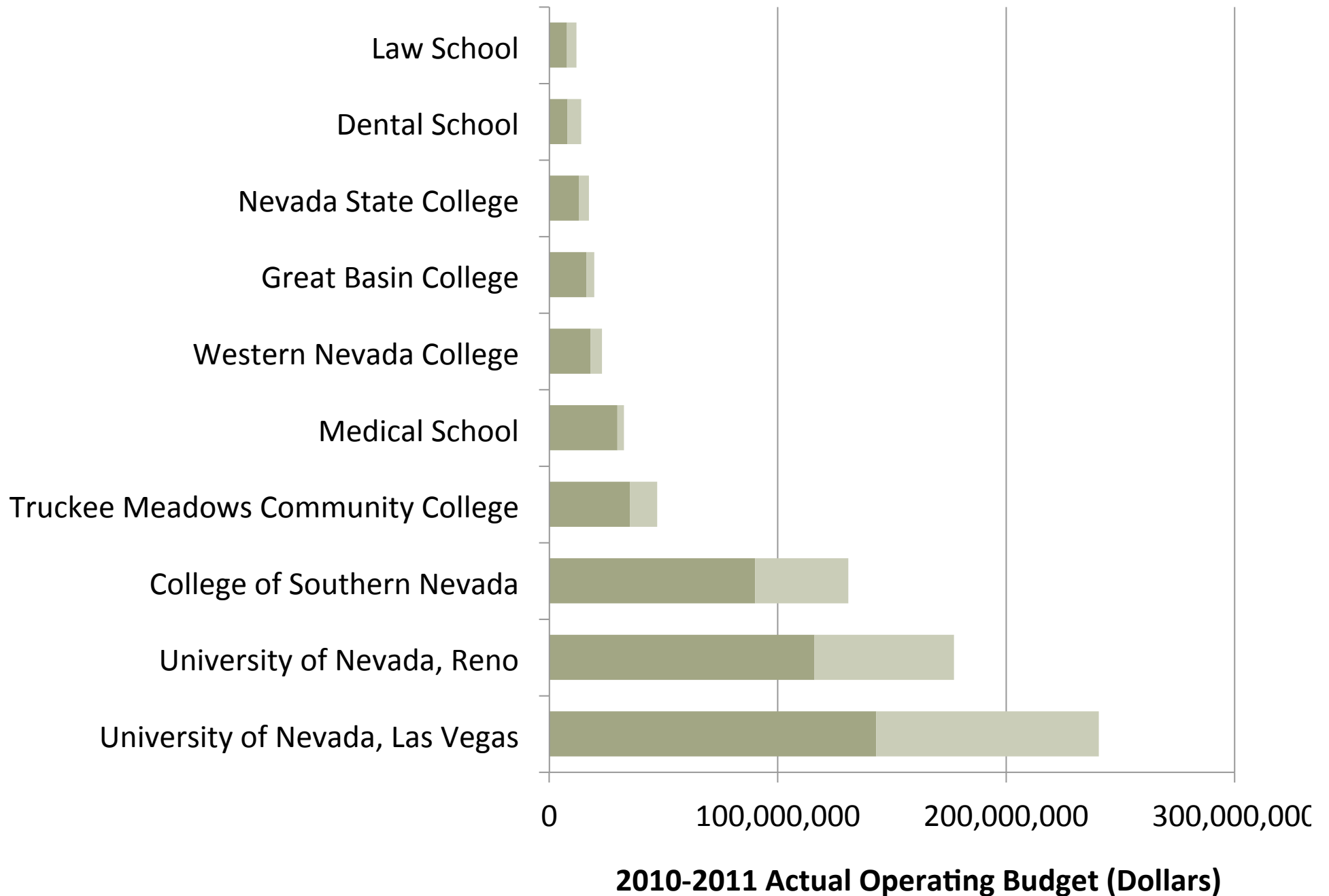**Performance Metrics: 2 year Colleges**

- Certificate and Associate graduates (*medium)*
- Transfers (24 credits or Associate) *(medium)*
- STEM, allied health & targeted ED graduates (*medium)*
- 6 year graduation rates (CCA approach) *(heavy)*
- Student credit accumulation metric *(light)*
- Remedial student progress metric *(medium)*
- At-risk student graduates *(light)*

Nevada's Higher Education Funding Model

Implementation

- Combination of financial incentives and institutional change

- Adoption over several years

- Threshold limits on initial impact

- Adoption at a steadily increasing scale (starting point > or = 25% state supported budget)

- Adoption through stakeholder consultation

- Ultimate goal: 100% performance based

2010-2011 Actual Operating Budget (Dollars)

Legend: ■ State General Fund ■ Non-GF revenue

Categories (top to bottom):
- Law School
- Dental School
- Nevada State College
- Great Basin College
- Western Nevada College
- Medical School
- Truckee Meadows Community College
- College of Southern Nevada
- University of Nevada, Reno
- University of Nevada, Las Vegas

X-axis: 0, 100,000,000, 200,000,000, 300,000,000

Use of FTE enrollments - definitions

Full-time equivalent student: either a single student who carries, or several students who together carry among them, within a single academic year, a minimum number of clock hours of instruction.

- **Current funding formula:**

  The Committee recommends using 30 student credit hours (SCH) as the definition of an FTE for both lower and upper division credit hours. Masters and Doctoral level student FTE should be determined on the basis of 24 SCH and 18 SCH respectively.

- Varies among states. For example, Arizona:
  - Undergraduate lower division: 15 semester credit hours attempted in courses
  - Undergraduate upper division: 12 semester credit hours attempted in courses
  - One FTE for each 10 semester credit hours attempted in graduate courses.