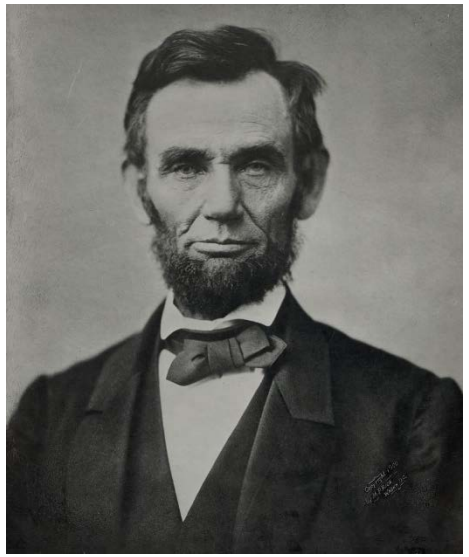
National Science Board
May 5, 2016

Some Brief Remarks:

1. The Lincoln Project
2. The Science Philanthropy Alliance
3. Undocumented Students

Berkeley
UNIVERSITY OF CALIFORNIA

The Lincoln Project:
Excellence and Access in Public Higher Education



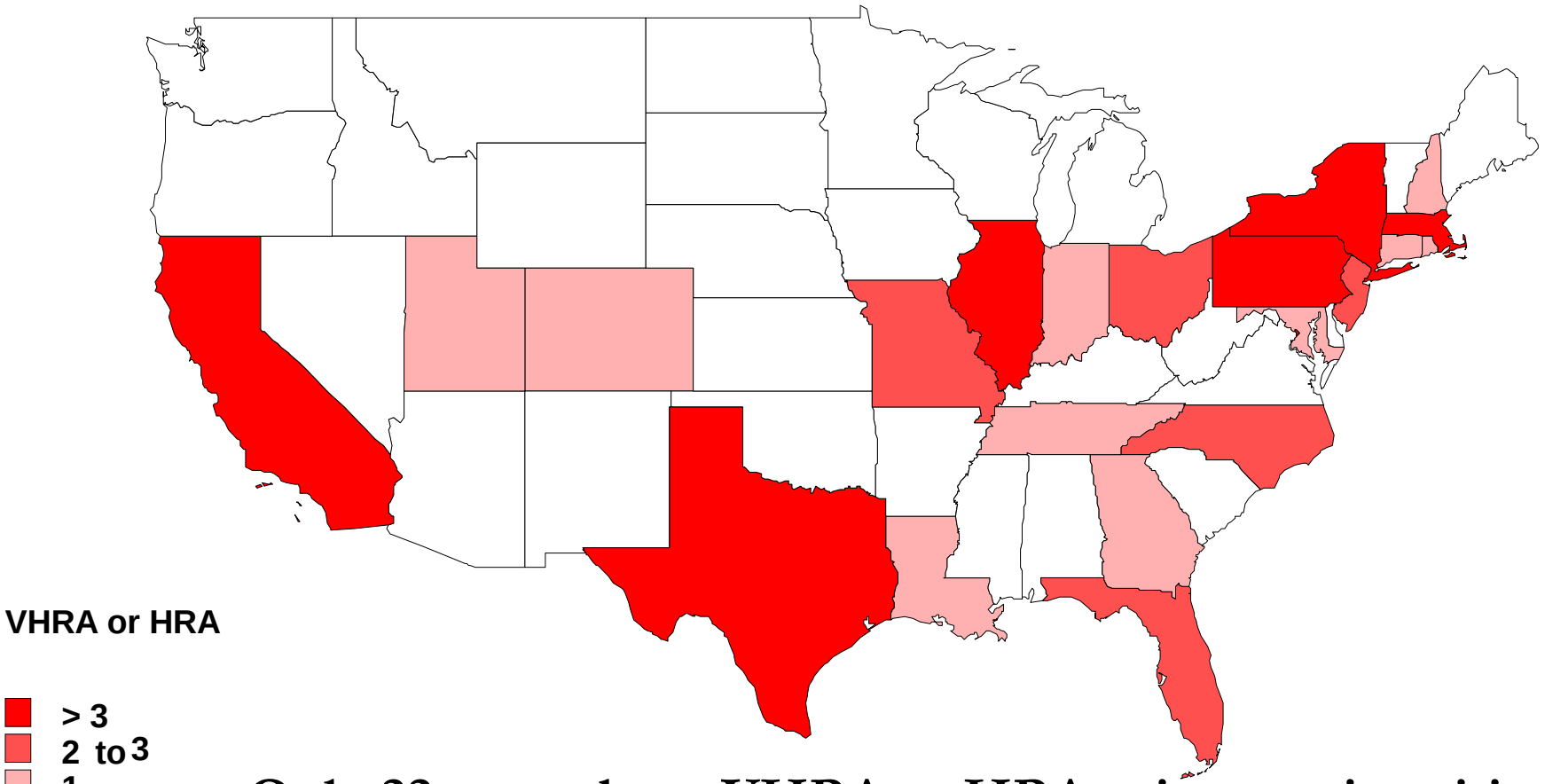
The Lincoln Project honors President Abraham Lincoln and his role in signing the 1862 Morrill Act, which laid the groundwork for the nation's unparalleled public university system.

Public colleges and universities – key engines of economic growth, innovation and upward mobility – are facing challenges from cutbacks in government support, competition from for-profit education providers and foreign universities, and emerging technological changes.

The American Academy is assessing the implications of these threats and developing recommendations to preserve the strength and diversity of public colleges and universities.

The Lincoln Project is engaging with state and federal policymakers, elected officials, university and business leaders, philanthropists, learned societies and the broad public.

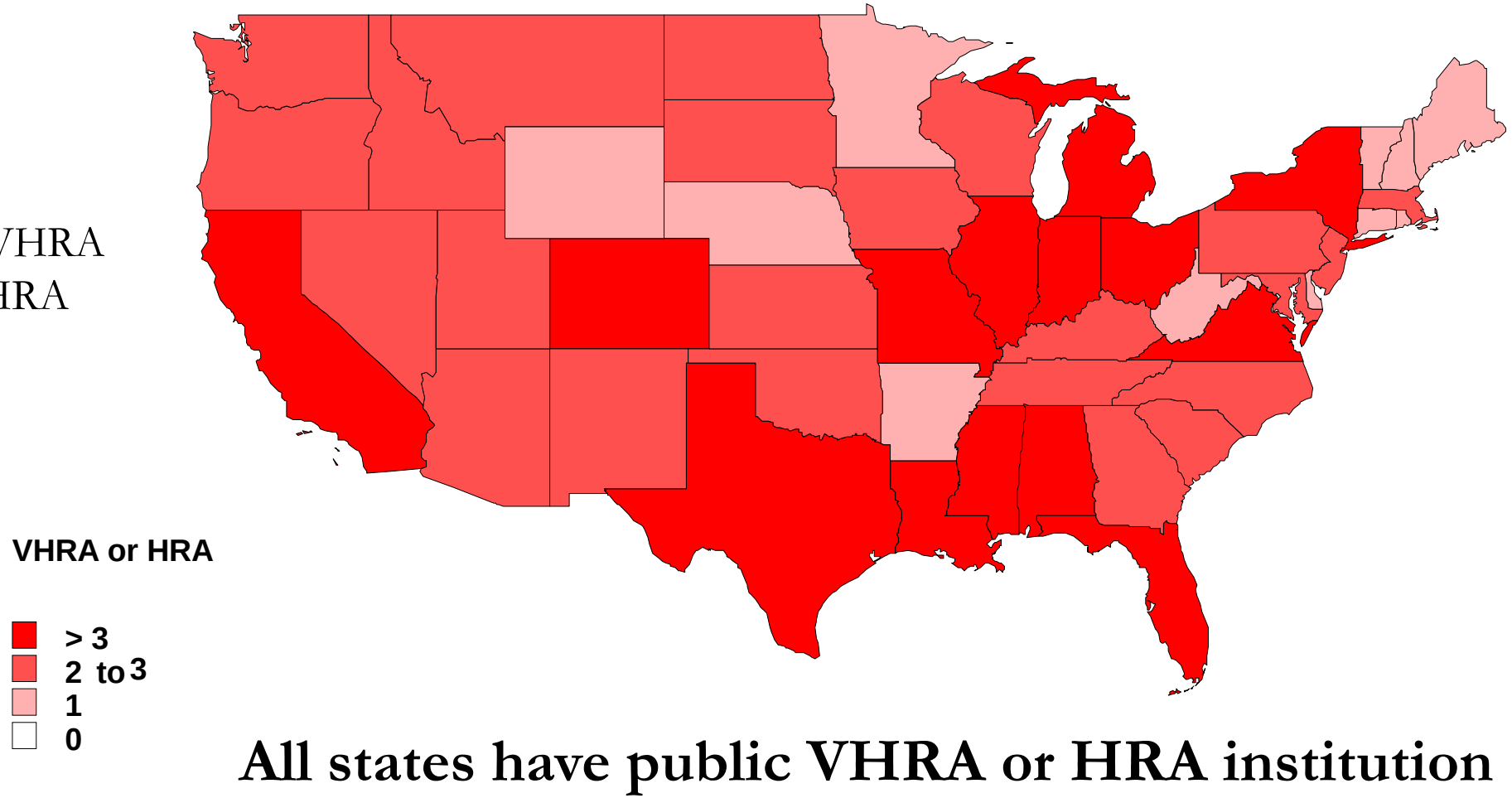
Number of Private "Very High" or "High" Research Activity Institutions by State



Only 22 states have VHRA or HRA private universities;
28 states do not have VHRA private universities

Number of Public "Very High" or "High" Research Activity Institutions by State

Hawaii is VHRA
Alaska is HRA



All states have public VHRA or HRA institution

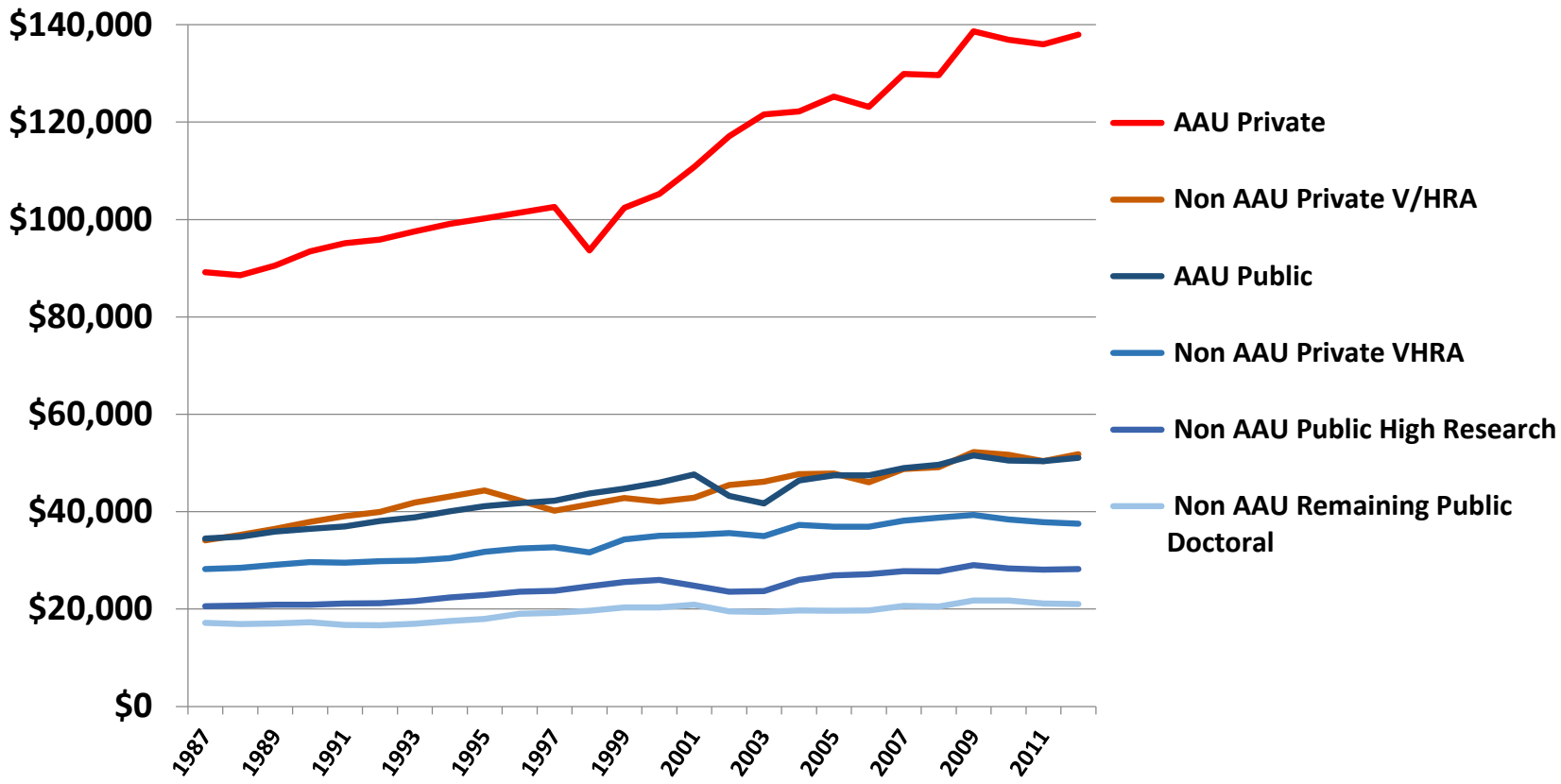
Impact: Size of Each Sector

- Consider VHRA and HRA institutions

- Undergraduate:
  - Private: 474,364
  - Public: 2,752,467

- Graduate
  - Private: 288,235
  - Public: 615,465

Expenditures per FTE, 1987-2012

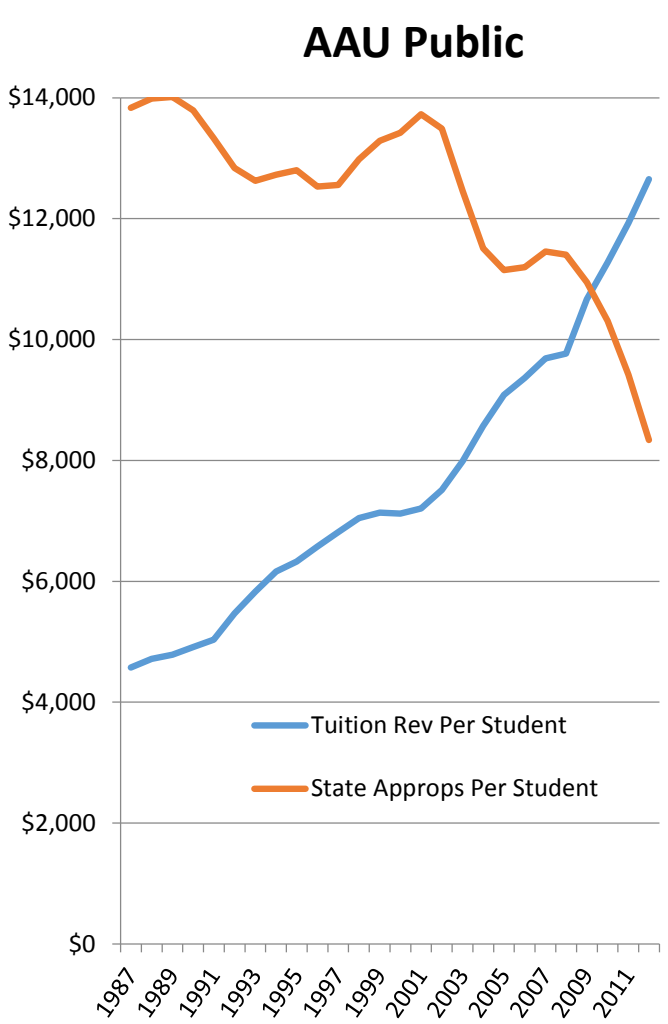


Hospital spending excluded, in 2012 dollars

Access Measures

Mean of –	All VHRA/HRA Institutions	
	Private	**Public**
Low Income/Middle Income	29.0%	44.7%
Middle Income/High-Middle Income	34.1%	36.0%
High Income	36.9%	19.3%
UG Under-represented Minority (per institution)	1,305	4,042
Graduate Under-represented Minority (per institution)	887	761

Trade-off Between State Funding and Tuition Revenue



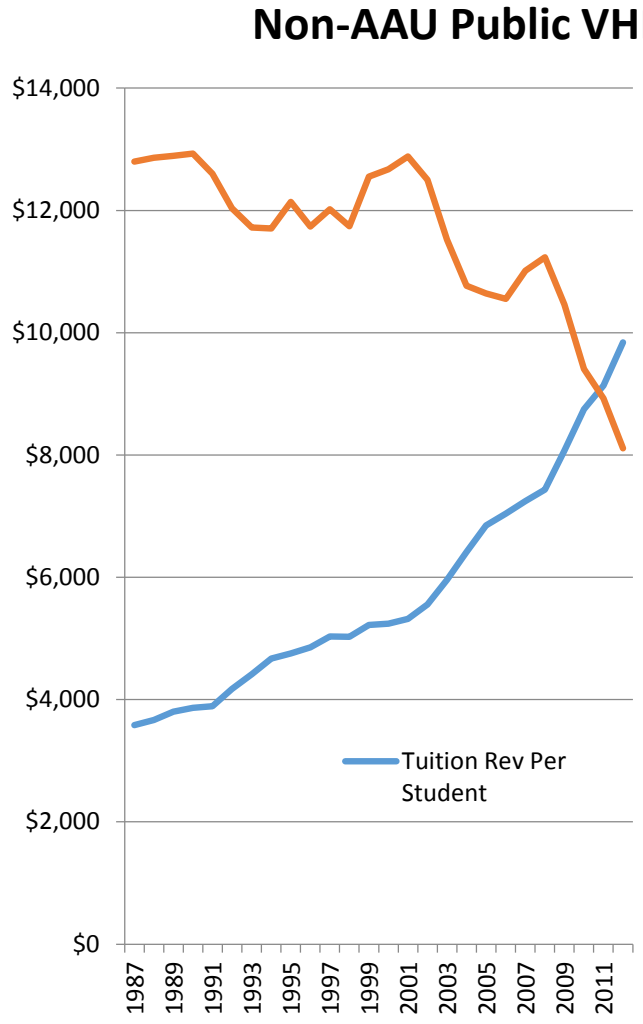
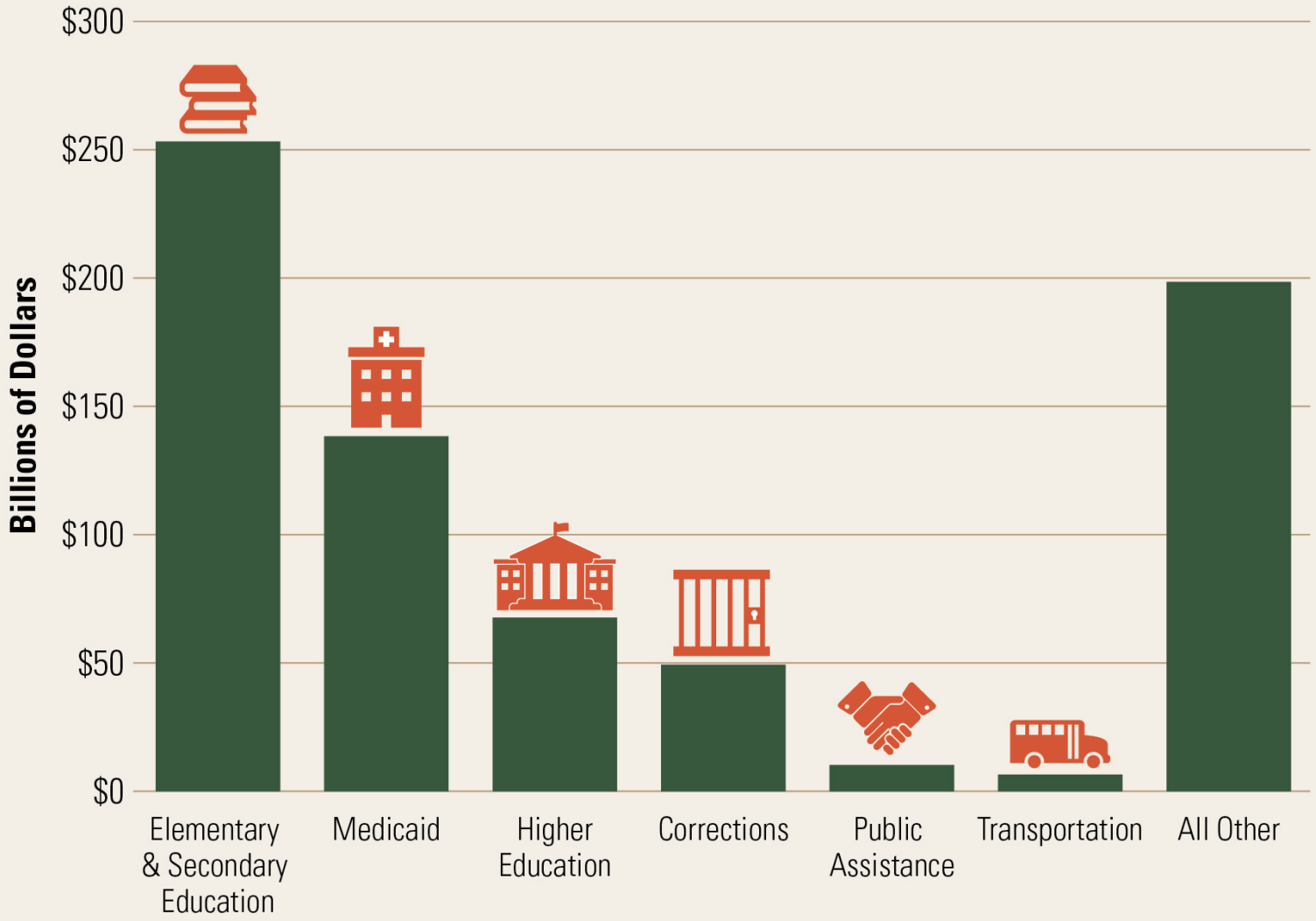


Figure 1: **State General Fund Expenditures in 2014 (Estimated), by Category**

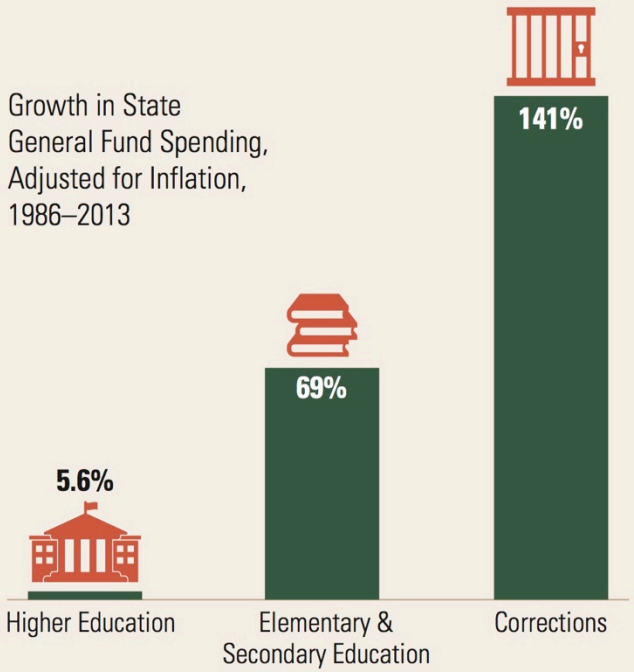


From *Public Research Universities: Changes in State Funding* (American Academy of Arts & Sciences, 2015)

State Spending on Corrections

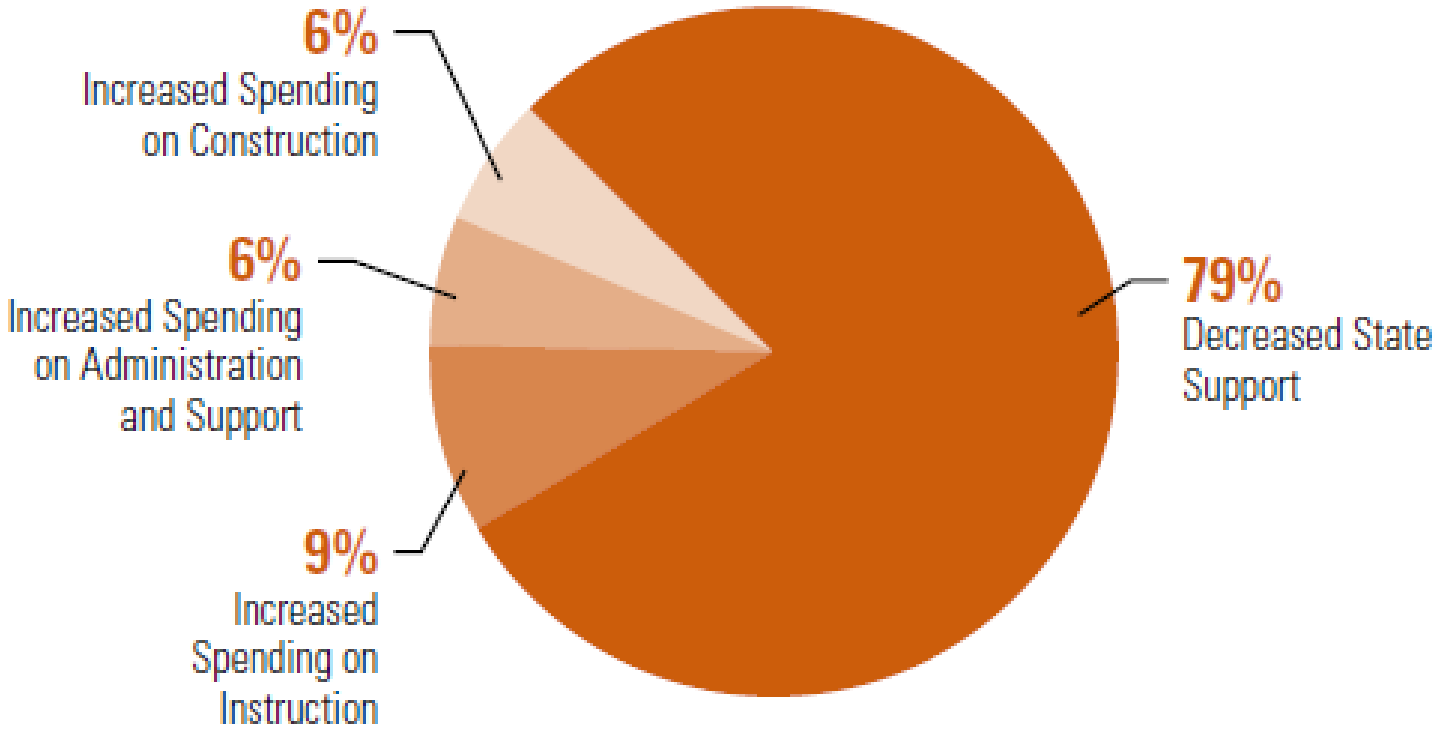
In general, state spending on corrections has grown much faster than education spending. In eleven states, corrections has now surpassed higher education as a percentage of funding.

Figure 7: **State Corrections Spending Has Grown Much Faster than Education Spending over the Last Three Decades**



Source: Center on Budget and Policy Priorities analysis of data from National Association of State Budget Officers, *State Expenditure Report* (various years, 1986–2013) (Washington, D.C.: National Association of State Budget Officers, 1986–2014), http://www.nasbo.org/publications-data/state-expenditure-report/archives.

Figure 1: **Drivers of Rising Tuition at Public Research Universities, 2001–2011**



Source: Robert Hiltonsmith, *Pulling Up the Higher-Ed Ladder: Myth and Reality in the Crisis of College Affordability* (New York: Demos, 2015), http://www.demos.org/sites/default/files/publications/Robbie%20admin-bloat.pdf.

Lincoln Project Recommendations

Federal Government

- Recognize that the nation's intellectual infrastructure is as important to the future as the physical infrastructure.

- Incentivize corporate and philanthropic contributions to public higher education.

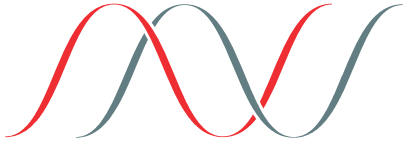
- Encourage partnerships—through challenge programs—between state governments, federal agencies, private philanthropists and public research universities.

Lincoln Project Recommendations

Federal Government

- Consider a new national endowment for public higher education, including public research universities.
- Simplify the Free Application for Federal Student Aid (FAFSA).
- Review and reduce unfunded regulatory mandates.

Reports and Recommendations



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ALFRED P. SLOAN FOUNDATION

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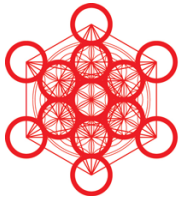


THE KAVLI FOUNDATION

RESEARCH CORPORATION *for* SCIENCE ADVANCEMENT

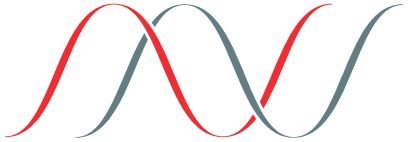
SIMONS FOUNDATION

wellcome trust

Heising-Simons Foundation

The Klarman Family Foundation

The Shurl & Kay Curci Foundation



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UCLA
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David Baltimore President Emeritus and Professor of Biology at Caltech, Nobel Laureate in Physiology or Medicine

Robert Birgeneau Chancellor Emeritus and Professor of Physics at University of California at Berkeley, Former President of the University of Toronto

Staff

Marc Kastner President and former Dean of Science, MIT

Valerie Conn Vice President, formerly development at University of Chicago

SCIENCE PHILANTHROPY ALLIANCE

- *Mission*
  - To increase private support for basic science research
- *Strategy*
  - Trusted advisors to philanthropists about basic science
- *Challenge*
  - Science landscape is complex, impact hard to measure

Why Basic Science Research is Critical

- Answers the deepest, most fundamental questions we have about the world
- Leads to wide-ranging applications and tremendous benefits and value

$1 on basic research → $10 - $80 in returns (NIH)

$3.8 billion public investment, 1988-2003
→ $796 billion in economic output
→ 4 million job-years over a 23-year period

Funding Challenges for Basic Science Research

- Federal funding of research & development at higher education institutions has fallen 11% since 2011, the longest multiyear decline in federal funding since data collection began in 1972. NSF, 2016
- 88% of AAAS scientists say that lack of funding for basic research is a serious problem. Pew Research Center, 2015
- 2% of 3700 scientists surveyed could not find private funds to replace loss of federal grants. Half reported that they had laid off researchers. American Society for Biochemistry and Molecular Biology, 2016
- Researchers spend 40% of their time writing grant proposals. Scientific American, 2011

What we do

Advise	Personalized advice regarding giving strategies
Connect	To Alliance members to learn models/mechanisms To leading scientists, programs, and institutions
Inform	News about basic science gifts Best practices and approaches for successful science philanthropy
Convene	Workshops on specific topics of interest Learning sessions about science and philanthropy


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Mass units
$^{12}C = 12.0000$ unified atomic mass units
$1u = 1.66 \times 10^{-27}$ kg
Hot
T_h
Cold
T_c
T_f
Zeroth Law
If 2 systems are in theral equilibrium with a 3rd system then they are in thermal equilibrium with each other.
Head
Early Drop
Buy packet in
Websites
-bCourses:
-Mastering Physics
-Piazza:
-GradeScope
Sections/Labs/GSI

2016 Vannevar Bush Award

Thank you, Thank you, Thank you.

This is one of the greatest honors in my 5-decade career in science.

Berkeley
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