

# Public Research Universities

Recommitting to Lincoln's Vision:  
An Educational Compact for the 21st Century



© 2016 by the American Academy of Arts & Sciences

All rights reserved.

ISBN: 0-87724-109-0

This publication is available online at <https://www.amacad.org/LincolnProject>.

The views expressed in this publication are those held by the contributors and are not necessarily those of the Officers and Members of the American Academy of Arts & Sciences.

Please direct inquiries to:  
American Academy of Arts & Sciences  
136 Irving Street  
Cambridge, MA 02138-1996  
Telephone: 617-576-6117  
Fax: 617-576-5050  
Email: [LincolnProject@amacad.org](mailto:LincolnProject@amacad.org)  
Web: [www.amacad.org](http://www.amacad.org)

*Cover:* The lights on the map represent the locations of Carnegie-classified Very High Research Activity and High Research Activity public universities in the United States as of January 2016.

The Lincoln Project: Excellence and Access in Public Higher Education

# Public Research Universities

Recommitting to Lincoln's Vision:

An Educational Compact for the 21st Century



## Note from Academy President

This is the fifth and final report of The Lincoln Project: Excellence and Access in Public Higher Education, an initiative of the American Academy of Arts and Sciences.

Since it began its work in January 2013, the Lincoln Project has examined the causes and results of reduced state investment in public research universities. A distinguished and diverse project committee met frequently over the past three years to discuss the challenges and opportunities for these important institutions, which educate millions of students, support the cultural and economic vitality of their states, and generate research that creates new knowledge and technology. Project leaders also convened regional forums in Charlottesville, Virginia; Austin, Texas; Atlanta, Georgia; New York, New York; and Chapel Hill, North Carolina, to share ideas with leaders from academia, business, philanthropy, government, and the media.

Previous publications of the Lincoln Project provide an overview of the current financial challenges as well as the significant achievements of public research universities. The first publication, *Public Research Universities: Why They Matter*, describes the benefits of public research universities as well as the changing demands on these institutions. The second, *Public Research Universities: Changes in State Funding*, examines state financing of higher education, the challenges that state governments face, and the prospects for greater state support in the future. *Public Research Universities: Understanding the Financial Model* details the most common financial models that sustain public research universities and examines new ideas for diversifying and enhancing funding sources in the future. The fourth publication, *Public Research Universities: Serving the Public Good*, describes the impact of public research universities on economic growth, civic engagement, scientific and technological discovery, and the well-being of individual students. These publications are available at <http://www.amacad.org/lincoln>.

This publication, *Recommitting to Lincoln's Vision: An Educational Compact for the 21st Century*, is the culmination of the Lincoln Project committee's work. It draws from previous publications and presents new recommendations for stabilizing and strengthening public research universities at an inflection point in their history. This report calls on the federal government, state governments, corporations, foundations, philanthropists, and, of course, public research universities to come together—to share responsibility for maintaining these institutions so that they continue to serve their states and the nation for generations to come.

This document is a result of the extraordinary commitment of the members of the Lincoln Project Advisory Group (see the inside back cover for the complete list of members). Their ideas, guidance, and hard work are evident in every aspect of this report. The Academy is especially grateful

to Cochairs Robert Birgeneau, chancellor emeritus at the University of California, Berkeley, and Mary Sue Coleman, president-elect of the Association of American Universities and president emerita of the University of Michigan, for their leadership and their unwavering dedication to this effort.

For the **complete summary of Lincoln Project recommendations**, see pages **28–30** of this publication.

In addition to Lincoln Project members Henry E. Brady and Michael Hout, the American Academy is grateful to Jon Stiles, Ph.D., University of California, Berkeley Department of Sociology and head of the University's social science data archive; Charlie Eaton, Ph.D. candidate, University of California, Berkeley Department of Sociology; and Donald J. Boyd, director of fiscal studies at the Nelson A. Rockefeller Institute of Government, for leading the data analysis effort.

We thank members of the Academy's Board, Council, and Trust, as well as other Academy members for their advice and ongoing support. And we are grateful to Leslie Berlowitz, former president of the Academy, for initiating this important project.

Funding for the Lincoln Project is provided by generous support from Robert and Colleen Haas, The William and Flora Hewlett Foundation, The Spencer Foundation, Carnegie Corporation of New York, and The Thomas and Stacey Siebel Foundation.

Jonathan F. Fanton  
*President, American Academy of Arts and Sciences*

## Introduction

**For the past one hundred and fifty years, state governments have been the principal funders of U.S. public research universities.** Through much of that history, they have been willing and active partners in the academic enterprise. They have recognized the importance of these institutions to the intellectual, cultural, and commercial health of their local communities and regions—as well as to the nation as a whole—and they have invested public funds accordingly.

Today, public research universities educate 3.8 million students annually, including almost 900,000 postbaccalaureate students (master's and doctoral students, as well as students pursuing professional degrees).<sup>1</sup> They enroll the best students from their respective states and regions, and serve large numbers of talented students from underprivileged backgrounds. Thirty-one percent of the undergraduates at public research universities receive Pell Grants,<sup>\*</sup> and the eight research universities with the highest share of Pell Grant students are all public.<sup>2</sup> Ultimately, public research universities prepare these students to become the teachers, business and civic leaders, lawyers, and doctors who are vital to our communities. They also initiate the fundamental research that drives scientific and technological discovery. But these institutions are now facing serious financial challenges.

For a variety of reasons, state funding of public research universities has declined precipitously over the past decade, shrinking an average of 34 percent nationwide.<sup>3</sup> These cuts are not necessarily the result of changes in political philosophy; rather, they reflect long-term structural changes in state finances. As a result of these cuts, public research universities have been forced to make difficult choices about institutional priorities. They have reduced expenses and raised tuition. For the moment, they have maintained their educational and research missions. But this trend is not sustainable.

As states continue to reduce their contributions, tuitions will continue to rise and many of the services that public research universities provide—to students, states, and regions—will be threatened. Additional savings, unsupported by new strategies and new partnerships, cannot offset state cuts without compromising either the public character of public research universities (by making college less affordable) or their educational missions (by cutting back core programs and research).

The states must reinvest in public research universities; but for reasons described in this report, it will be difficult for them to restore public higher education funding to the levels reached even a decade ago, before the last recession. Universities must therefore work to diversify their revenue streams. To do so, they will need willing partners from the private and public sectors, both of which already benefit immensely from the contributions of public research universities.

<sup>\*</sup>A Federal Pell Grant is money awarded by the federal government to students in need of financial aid. For the 2016–2017 award year, the maximum award amount is \$5,815.

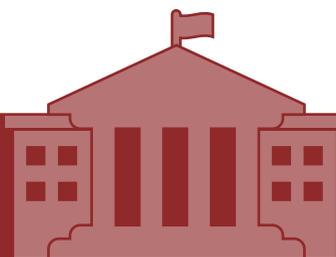
When Abraham Lincoln signed the Morrill Act in 1862, providing federal lands to establish “colleges for the benefit of agriculture and the Mechanic arts” as well as “scientific and classical studies,” his goal was to prepare a wide segment of the population for productive lives in an increasingly industrialized nation. The act created a set of institutions that would evolve over time—a new system of publicly supported American higher education that would respond to the needs of Americans in every state and territory.<sup>4</sup>

During the century that followed the signing of the Morrill Act, public universities grew to provide a much broader set of educational opportunities than the act's architects foresaw: they built new laboratories, theaters and cultural centers, athletic facilities, and hospitals; they educated and trained members of every profession; and they anchored regional economies. Indispensable as educational *and* research institutions, they became a central component of the nation's intellectual infrastructure.

The American Academy created the Lincoln Project: Excellence and Access in Public Higher Education at a time when Abraham Lincoln's experiment in public higher education is at risk. This report, the fifth and final Lincoln Project publication, recommends new strategies to help public research universities respond to changing societal, economic, and financial pressures. It offers a series of recommendations—**highlighted with bold red text throughout the report and summarized in its conclusion**—each of which would help sustain and strengthen public research universities over the long-term. The ideas collected in this report focus on three specific strategic directions:

1. Renewed state support, new cost efficiencies, and additional revenue streams to help public research universities respond to financial challenges;
2. New public-private partnerships to sustain and strengthen research and education for the future; and
3. A continuing effort to improve the ways public research universities serve individual students.

Public research universities have been critical to the success of the nation and its citizens over the past one hundred and fifty years, and the services they provide to the public and the roles they occupy in our communities will be as critical to American success in the century to come. It is therefore imperative that these universities be preserved and strengthened for the good of the nation and to the benefit of students, local communities, and the states.



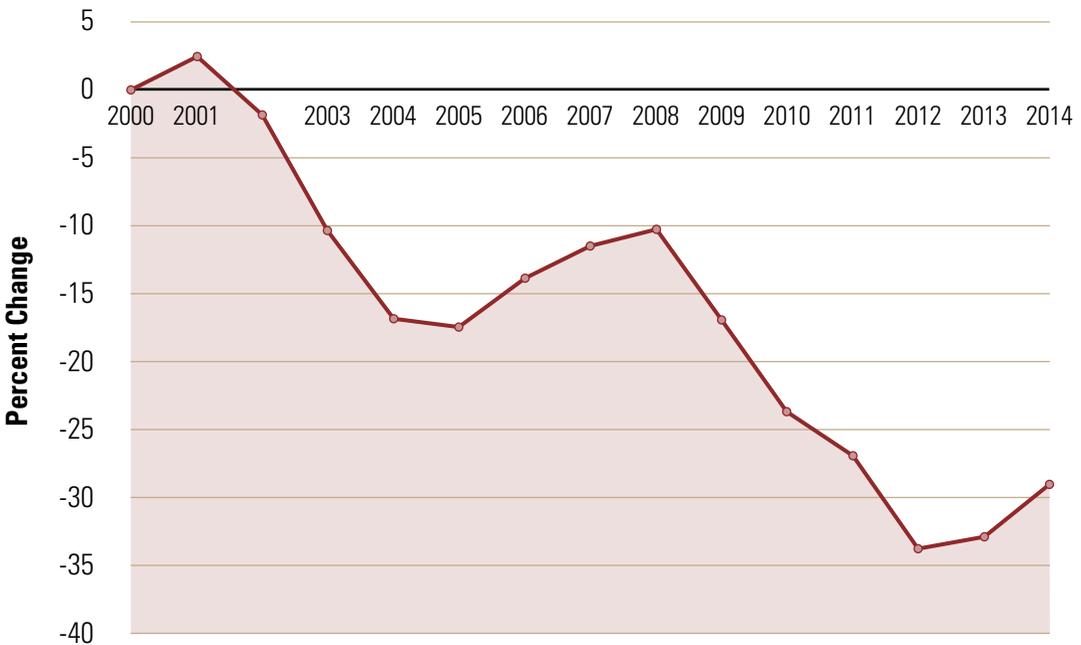
The Lincoln Project defines **public research universities** as institutions of higher education that **receive a portion of their funding from state and local appropriations**, educate undergraduate and graduate students, are Carnegie-classified as Very High and High Research Activity universities, and are located in one of the fifty states.

## Section 1: Addressing Current Financial Challenges

### Public Higher Education

Higher education has long been described as the “balance wheel” of state budgets. Public colleges and universities are different from other state agencies: they have their own revenue streams, they can adjust their program offerings, and they have some control over employee salaries. As this report will make clear, their budgets are not infinitely flexible, but they are more flexible than the budgets of most state institutions. Accordingly, the states tend to increase their contributions to public higher education when the economy is strong, and cut their contributions when the economy is weak.

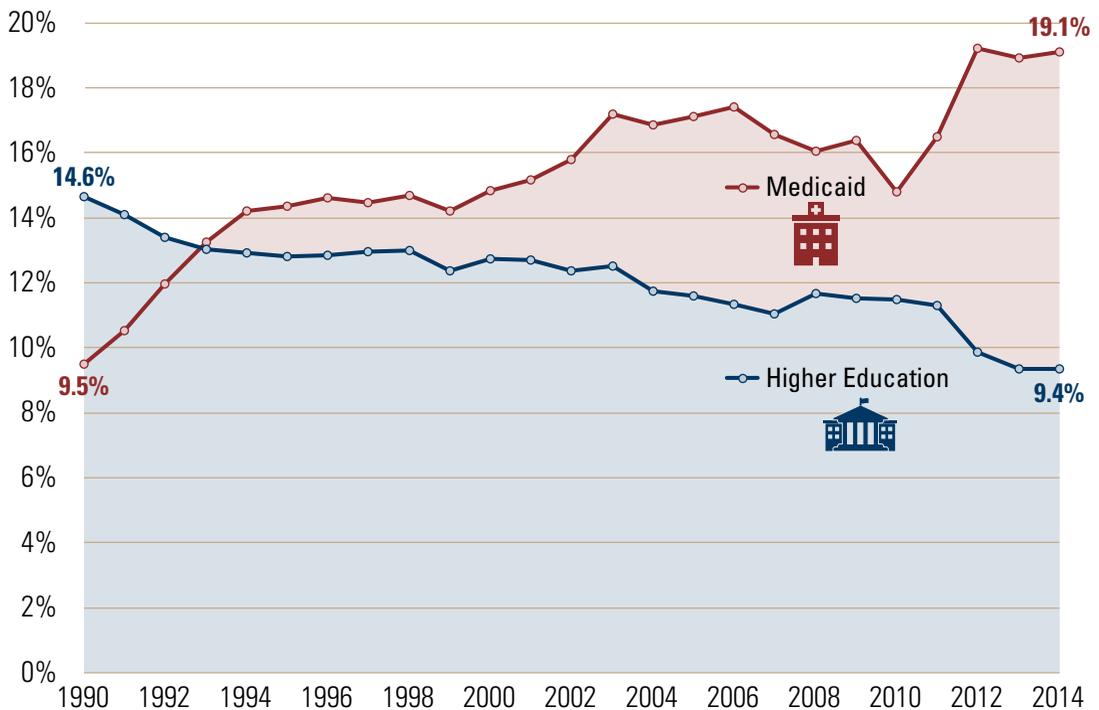
Figure 1: **Percent Change in State Support for Public Higher Education (All Colleges and Universities) per Full-Time Equivalent Student, in Constant 2014 \$, since 2000**



Despite modest increases in 2013 and 2014, state support for public higher education per full-time equivalent student remains nearly 30 percent below spending in 2000, after adjusting for inflation using the State Higher Education Finance cost adjustment. **Source:** State Higher Education Executive Officers (SHEEO) Association, *SHEF: FY 2014—State Higher Education Finance* (Boulder, Colo.: State Higher Education Executive Officers Association, 2015).

Higher education remains the third-largest priority in state general-fund budgets (the portion of the budget financed primarily by taxes). But at 9.4 percent of general-fund state expenditures, it is a distant third behind elementary and secondary education at 35 percent and Medicaid at 19 percent. Over the past twenty years, and especially since the most recent recession, states have dramatically reduced their funding for public higher education. Although spending increased slightly in 2013 and again in 2014, these increases do not begin to make up for the preceding cuts: after adjusting for inflation, spending per full-time equivalent (FTE) student in 2014 was nearly 30 percent below the spending level in 2000. During the same fourteen-year period, state general-fund spending on Medicaid, K–12 education, and corrections increased by 52 percent, 15 percent, and 14 percent, respectively. In short, state spending on higher education remains at a historic low, even after most states have recovered from the worst effects of the recession and have begun to restore spending in other categories.

Figure 2: **Higher Education (All Colleges and Universities) and Medicaid as Share of State General Fund Expenditures**



Higher education has fallen as a share of state budgets, while Medicaid has risen. Source: National Association of State Budget Officers, *State Expenditure Report* (various years, 1990–2014) (Washington, D.C.: National Association of State Budget Officers, 1991–2015), <http://www.nasbo.org/publications-data/state-expenditure-report/archives>.

## Public Research Universities

**The decline in state support represents a fundamental challenge that strikes at the core missions of these institutions.** Is public higher education truly open to the public? Can high school graduates afford to attend their state's postsecondary institutions? If they can afford to attend, what kind of education can they expect to receive?

These are the basic questions common to all of public higher education. But for the nation's public research universities, the challenge is even more complicated.

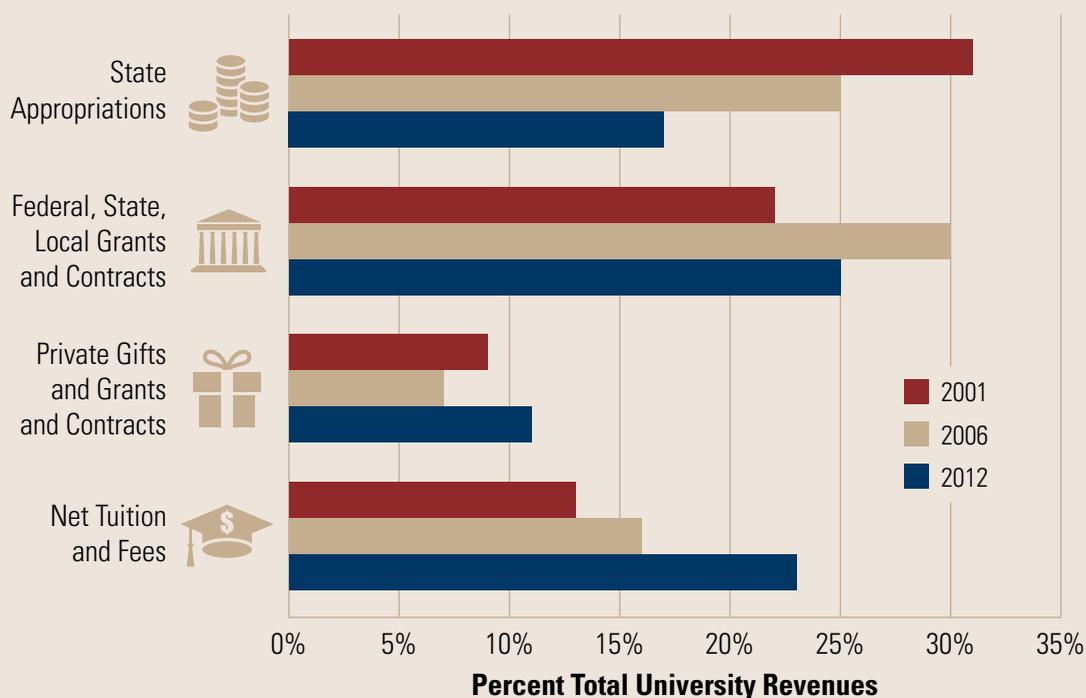
Public research universities—Carnegie-classified as Very High and High Research Activity public universities—enroll the best students in every state: 87 percent of entering first-year students at these institutions are from the top half of their graduating high school class.<sup>5</sup> They educate a large portion of our nation's population: 3.8 million students, including almost 900,000 post-baccalaureate students (master's and doctoral students, as well as students pursuing law, medicine, and dentistry), are enrolled annually in public research universities.<sup>6</sup> They also initiate much of the fundamental research that drives scientific and technological discovery and grows local and national economies. Yet despite the crucial role they play in every state in the nation, public research universities have faced more severe cuts than public higher education overall, averaging a 34 percent drop in state support per FTE student from 2000 to 2012.<sup>7</sup>

Public research universities have absorbed the cuts to the best of their abilities, using all of their available tools—addressing inefficiencies, consolidating academic programming, tightening research budgets, and raising tuition. As a sector, they have risen to the financial challenge, but they are running out of options. Public research universities cannot continue to raise tuition without an accompanying increase in need-based financial aid. They cannot continue to cut academic programs without having an impact on the quality of the education they provide. They cannot further cut operations, maintenance, and other institutional support without impacting the quality of the research conducted in campus laboratories. They cannot expect that new efficiencies alone will make up the difference between what they have and what they need. In fact, they are leaner today than they have been in a generation.

Some state systems are faring better than others: in 2013, Alaska invested more than \$27,000 per FTE student; Colorado, in contrast, provided only \$220 for each FTE student.<sup>8</sup> On average, state appropriations now account for only 18 percent of the total educational revenue per FTE student for public research universities, a dramatic decrease from 32 percent in 2000.<sup>9</sup>

Undoubtedly, the most effective and efficient solution to these challenges would be for **all fifty states to recommit to the financial support of their public research universities—if not by reversing the cuts made over the last decade, then at least by increasing public higher education contributions over the next decade.** Conceived as state institutions, serving state popula-

Figure 3: **Revenue Sources of Public Research Universities, 2001, 2006, and 2012**



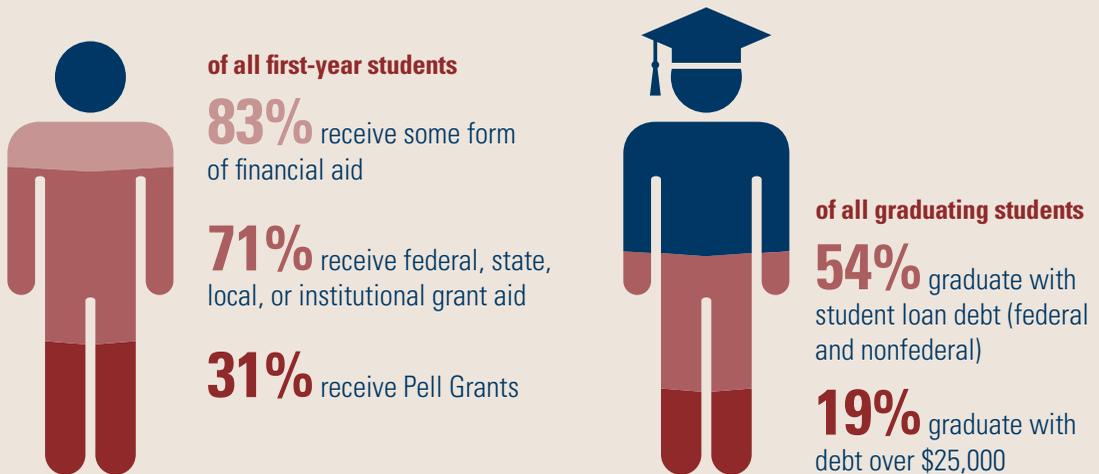
Public research universities are increasingly reliant on tuition and fees in the wake of cuts in state appropriations. Data shown represent public research universities that are members of the Association of American Universities. **Source:** Council on Governmental Relations Costing Committee, *Finances of Research Universities, June 2014 Version* (New York; Washington, D.C.: Council on Governmental Relations, 2014).

tions, driving state economies, governed by state-appointed or -elected boards, public research universities are fundamentally state entities; any solution to the challenges they face must begin with state governments. Otherwise, these institutions will lose the distinct character that has made them so important to the states and the nation.

Each public research university has a responsibility, implicit in its relationship with the state, to serve a student population that is as broad and diverse as possible. Over a lifetime, a college graduate (from either a public or a private institution) can earn as much as \$1 million more than a person with a high school diploma.<sup>10</sup> Public research universities have been particularly effective in spreading this opportunity to students from underprivileged backgrounds, immigrant families, and families for whom higher education (and its benefits) would otherwise be unattainable.<sup>11</sup>

For this reason, the single most important higher education program that any state can pursue is **the provision of comprehensive financial aid to low income, in-state undergraduates**. California's Cal Grant and Indiana's 21st Century Scholars programs offer two successful models that could be replicated elsewhere. These programs support students who meet requirements in certain need- and performance-based criteria, including family income and minimum grade point average. Cal Grant offers up to \$12,240 per year per FTE student, which can be used for a variety of expenses, from tuition and housing to books and meal plans.<sup>12</sup> The 21st Century Scholars program covers four years of full tuition costs at Indiana public colleges and universities or partial tuition at approved private universities in Indiana for qualifying students. Such programs are critical for individual students, but they also greatly strengthen the social and economic fabric of local communities, states, and regions.

Figure 4: **Financial Aid and Access for Undergraduates, 2012–2013**



Source: National Center for Education Statistics, IPEDS [Integrated Postsecondary Education Data System] (U.S. Department of Education, Institute of Education Sciences), <https://nces.ed.gov/ipeds/>; The Institute for College Access & Success, College InSight, <http://www.college-insight.org>; and National Center for Education Statistics, 2011–12 National Postsecondary Student Aid Study (NPSAS:12) (U.S. Department of Education, Institute of Education Sciences).

## Maintaining the Public Trust

By serving student populations that mirror the broader demographics of their states, public research universities hold public faith. Maintaining the trust of taxpayers is a responsibility that all public research universities share. They must continuously prove to be credible stewards of the public's confidence as well as its funds. And so any attempt to attract new financial support, for example, from the private sector or philanthropists, must honor this relationship.

Historically, public research universities have proven to be honest and self-critical partners with business, government, and other donors. In recent years, they have examined and reexamined their budgets to find substantial cost savings, and many institutions have been successful in refining their cost structures. The University System of Maryland's Effectiveness and Efficiency Initiative yielded \$356 million in savings during its first ten years, and the University of Pittsburgh's cost saving efforts through aggressive price negotiations with suppliers have saved more than \$120 million over the past five years.<sup>13</sup> However, all will need to continue these efforts in the years ahead, especially if public research universities hope to attract new funding and develop new academic and research programs.

One way for public research universities to sustain fiscally responsible practices, and to exhibit their restraint to taxpayers and potential partners, is to **establish annual cost and efficiency targets**. Even as public funding of higher education is diminishing, public scrutiny is increasing, driven primarily by concerns over rising tuition. Public research universities are being asked to serve more students and provide more services with less funding; thus far they have succeeded on both counts. But as they seek to cut costs and realize other efficiencies, they must be vigilant. Public confidence, as well as institutional vitality, will be strengthened by the establishment of reasonable goals to limit spending, followed by a clear and transparent attempt to report on such goals to students, parents, alumni, local media, federal and state legislators, and key figures in the executive branch of state government.

Public research university employees, including the faculty and administration, should work together to develop and implement sustainable financial policies. Cost-cutting is most effective when it is a shared obligation. But **ultimate fiduciary responsibility rests with boards of regents and trustees, who need to play a more active and prominent role in university oversight**. A well-informed board can and should be an asset to public research universities adjusting to new funding models. As the Association of Governing Boards of Universities and Colleges has argued, "While boards are not the source of the governance challenges facing higher education, changes to boards and their structure can lead to improved leadership across higher education—in setting goals, in using data to evaluate performance, and in making strategic investments in ways that create value."<sup>14</sup> Boards can be most helpful if their members have a broad range of expertise, including experience running large and complicated organizations,



## Regulatory Reform

All universities—public and private—face a steadily proliferating set of regulations. The cost of compliance with these regulations is particularly onerous for public research universities facing decreasing state funding.

Researchers at **Vanderbilt University** have found that among thirteen institutions, the cost of compliance with local and federal regulations ranges from **11 to 25 percent of research expenditures**, and from **2 to 8 percent of nonresearch expenditures**.

In response to this regulatory burden, the National Academies have recommended that Congress establish a commission to review all regulatory requirements on universities and to reduce unnecessarily burdensome regulations. Such an effort is well overdue and would be a significant show of federal support for U.S. public higher education, and for public research universities in particular.

Source: Vanderbilt University, *The Cost of Federal Regulatory Compliance at Vanderbilt University: An Assessment of Federal Regulatory Compliance Costs at 13 Institutions in FY 2013–2014* (Nashville, Tenn.: Vanderbilt University, 2015).

and if their members serve as public champions of the institutions that they lead. Although institutional knowledge is of great importance in university governance, boards should also evolve over time as changing financial realities require new kinds of expertise.

## Regional Partnerships

**Efficiency targets and active board engagement on fiduciary matters are already standard practices at many public research universities.** They help to strengthen the internal administration of large institutions, and they give the public confidence that public higher education is well run and careful with taxpayer dollars. In addition to these basic *internal* adjustments, public research universities should also pursue *external* efficiencies: combining resources, coordinating programs, eliminating duplicate course offerings, and saving costs among neighboring institutions or through **regional alliances with similar institutions**.

There are now several model alliances for public research universities to consider. The Committee on Institutional Cooperation (CIC) is among the most successful. Established by the presidents of Big Ten institutions in 1958 to share expertise, libraries, and specialized courses and to collaborate on innovative programs, the CIC has since grown to include fifteen Midwestern universities.<sup>15</sup> On a smaller scale, the University of North Carolina, Chapel Hill has worked with Duke University to combine their history department offerings. Similarly, three academic institutions (the College of Engineering at Virginia Polytechnic Institute and State University, the Wake Forest School of Medicine, and the Virginia–Maryland Regional College of Veterinary Medicine) have established a joint graduate program in the Virginia Tech–Wake Forest University School of Biomedical Engineering and Sciences that gives students access to all three campuses, including courses, faculty, and facilities.

Such alliances are among the most effective and efficient ways for public research universities to reduce costs without reducing the quality of their educational programs—to do more with less. They help institutions expand their offerings to students through shared courses and research opportunities. They provide students with new opportunities for faculty mentorship, as well as the ability to attend intercampus conferences and research symposia and to collaborate with peers in diverse specialty areas. They enhance research programs by pooling talent as well as expensive equipment. And they signal to the wider population that public research universities are managing their investments not just on isolated campuses but across broad geographic areas.

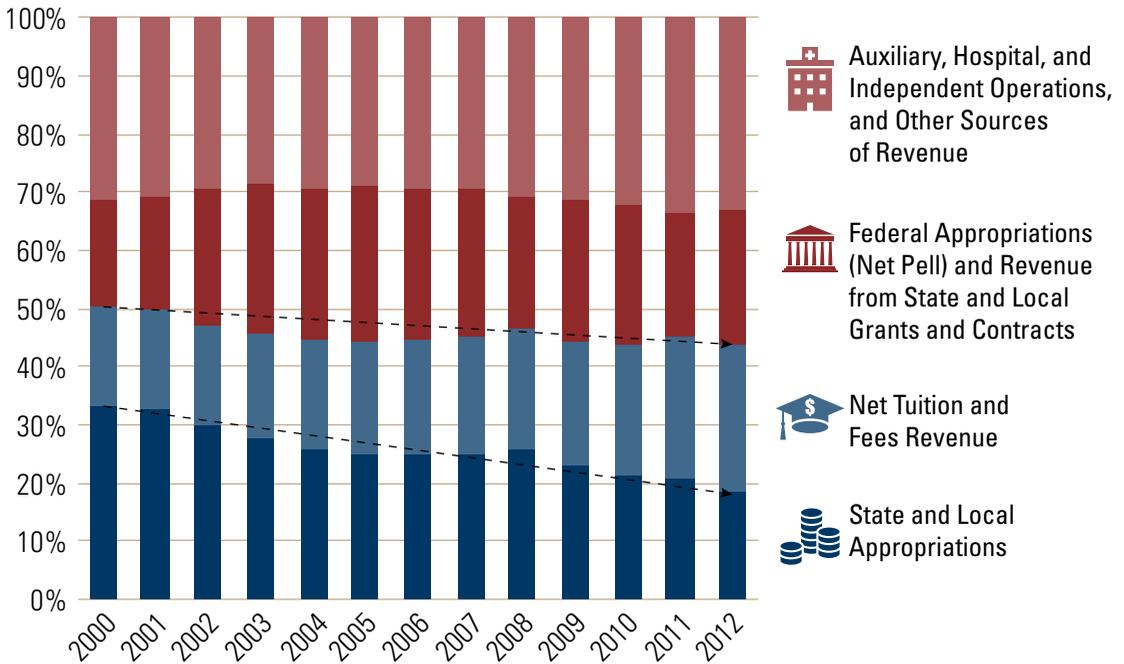
## Toward a New Financial Model

As important as it is for public research universities to maximize available resources, they will not be able to sustain programs, honor excellence, and ensure access without new sources of support. The traditional financial model for funding public research universities is now outdated. Any solution will require an infusion of new strategies, ideas, partnerships, and revenue streams—a new compact among the federal government, state governments, the students, corporations, foundations, philanthropists, and, of course, the universities themselves. Only with the active participation of these partners can public research universities attain the sustainable, stable, and comprehensive financial models that will enable them to support future generations of American students.

To make up for budgetary shortfalls, public research universities have in recent years relied more heavily on restricted funds, which are often easier to raise than unrestricted funding. Donors typically prefer to restrict their gifts to specific projects and activities, especially if they want to see that their contributions yield immediate, tangible results. However, these funds can rarely, if ever, be redesignated to cover general educational expenses, which remain the primary costs at every public research university. Tuition, as one of the only unrestricted sources of funding that universities receive, has thus grown not only as a percentage of total budget, but in real dollars. Along with student fees, tuition now constitutes more than one-half of the core educational support for public research universities.<sup>16</sup> However, tuition can be stretched only so far. Public research universities must therefore develop **new partnerships with the business and philanthropic communities that provide institutions with budgetary flexibility and financial stability, even as they reduce dependence on tuition increases**. Funds that support the educational and teaching mission—through specific academic programs, teacher training, endowed faculty positions, or even workforce development strategies—will have the greatest impact on undergraduate and graduate tuitions, on the overall student experience, and on the university's bottom line.

This strategy requires a new approach to fundraising. Private research universities have a long history of successful alumni stewardship, but at most public research universities, fundraising and development operations are relatively new. While a few of the nation’s largest public research universities anticipated the decline in public support and established robust development strategies, most are just now increasing their fundraising operations and beginning educational campaigns with their alumni. Of the seventy-seven institutions that responded to a Lincoln Project survey, 90 percent have recently completed or are in the early stages of launching a capital campaign. The University of Virginia, University of Texas at Austin, and University of California, Los Angeles have each successfully launched or completed \$3 billion-plus campaigns. As a dramatic example, funding generated through development activities at the University of Michigan is now considerably larger than the state allocation: the university launched

Figure 5: **Distribution of Revenue per Full-Time Equivalent Student, 2000–2012**



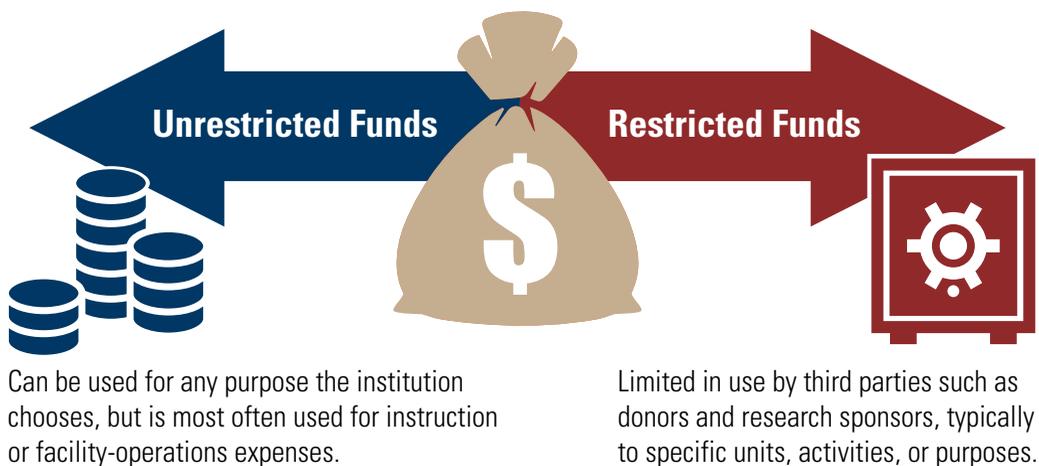
Net tuition is the published tuition minus any grants, loans, or other aid; in other words, it is the actual amount students pay to attend an institution. While auxiliary activities like housing management and food services are important components of universities, they are generally self-funding and do not contribute substantial revenue to the core operating budget of the university. **Source:** National Center for Education Statistics, IPEDS Analytics: Delta Cost Project Database 2000–2012, <https://nces.ed.gov/ipeds/deltacostproject/>.

a \$4 billion fundraising campaign in November 2013, and as of March 2016, nearly \$3.2 billion had been pledged.

These development activities must continue and expand in the years ahead, particularly to help raise unrestricted funds to support core educational activities. Public research universities should be transparent with donors about the challenges they face, and university development offices should help educate donors about how their gifts can have the greatest impact. **Potential donors should consider providing core educational support rather than contributing to activities ancillary to the academic enterprise.**

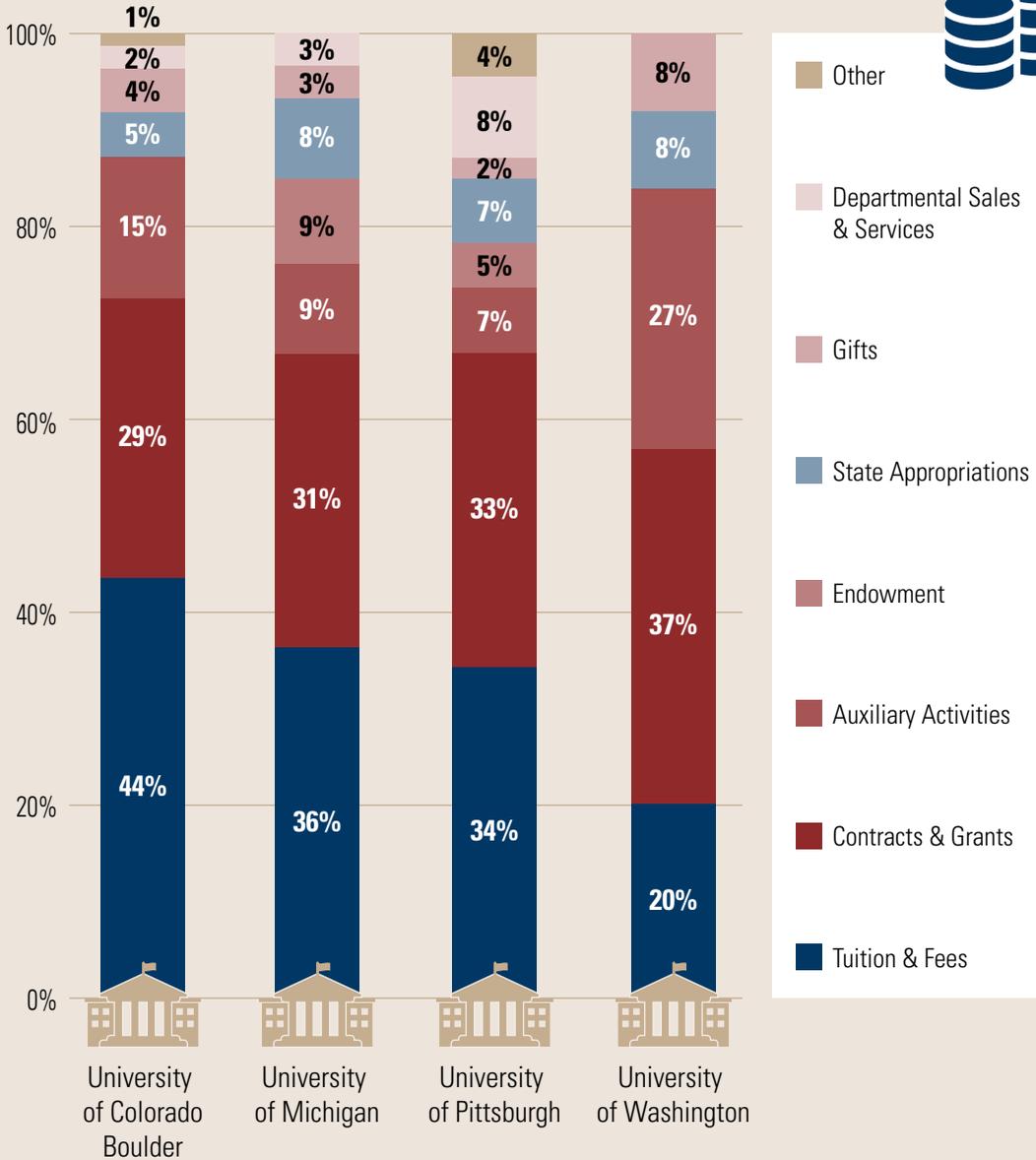
**State and federal matching programs might also help leverage philanthropic donations**, and would be especially welcome as potential sources of permanent university endowments. Such endowments serve three purposes: First, endowment income, combined with well-run annual campaigns, can make significant contributions to the operating and capital costs of the university. Second, endowments give public research universities additional flexibility to support student scholarships and financial aid. And third, prudently invested endowments provide a steady stream of income that serves as institutional insurance against the fluctuations of state appropriations and as a buffer against rapid changes in other revenue sources.

Figure 6: **All Revenues Consist of Either . . .**



As state appropriations have decreased, restricted funds have grown as a percentage of total budgets at public research universities. While federal appropriations and revenues from state and local grants and contracts have increased since 2000, these are restricted to purposes specified in the original agreements and can rarely, if ever, be shifted to cover educational expenses. The net effect of a shift over time from unrestricted funds to restricted funds is a decline in the budgetary flexibility of public research universities.

Figure 7: **Resource Sources for Select Institutions, FY2015**



These data exclude revenues from university health systems. For the University of Pittsburgh, “Other” includes rental revenue, patent and royalty revenue, faculty and staff newspaper advertising and subscriptions sales, and symposium registration fees. For the University of Colorado Boulder, “Other” includes facilities-rental and royalty income, and miscellaneous fees, fines, and charges for services (including application fees, library fines, and testing fees). **Source:** Office of Planning, Budget, and Analysis, University of Colorado Boulder; Office of Budget and Planning, University of Michigan; Office of the Provost, University of Pittsburgh; and Office of Planning and Budgeting, University of Washington.

States should also establish long-term funding goals, including targets for the growth of state investment in public higher education, to stabilize support and assist universities in long-term planning. Targets would vary by state, depending on the specific needs of public higher education institutions in each region. But a basic formula could be applied that steadily increases support in a way that tracks long-term economic trends such as inflation or family income growth in the state. Ultimately, public research universities are like every large enterprise: they perform best when funding is stable and they can plan their budgets and programs.

## Virtues of Matched Endowments: Ten Thousand Faculty Chairs in Ten Years

In 2012, chancellor emeritus Robert J. Birgeneau, former vice chancellor Frank Yeary, and Ph.D. candidate Seth Garz from the University of California, Berkeley published the white paper *Knowledge Made in America: A Private-Public Funding Model for Leading Public Research Universities*, which outlines a new vision for supporting America's public research universities.<sup>17</sup> The report recommends that the **federal government use matching grants to attract private philanthropic investments in permanent university endowments, including endowed faculty chairs, and to encourage state governments to sustain support for public higher education.**

The plan calls for the federal government to commit \$1 billion annually for ten years, matched by philanthropic donors and the states, to create ten thousand faculty chairs across the nation.

Every \$1 million of federal support would be matched by philanthropic donors and state governments, creating a \$3 million faculty chair endowment. That endowment would support \$75,000 toward the faculty chair salary, \$50,000 for graduate students, and \$25,000 for research expenses.

Beyond salaries and research funding, matched endowments have far-reaching benefits for institutions:

**Longevity and Stability:** Endowments, which are not subject to state revenue fluctuations, provide critical financial stability during periods of uncertain or inadequate funding.

**Innovation and Excellence:** Endowments cultivate innovative research and excellence in instruction. For example, the Miller Institute for Basic Research in Science—endowed at the University of California, Berkeley with \$5 million in 1945—has supported more than one thousand scientists, including seven Nobel Prize winners and six Fields Medal winners.

**Spark for Stimulating Private Fundraising:** Many private philanthropists are much more likely to contribute gifts when their contribution is matched.<sup>18</sup> The William and Flora Hewlett Foundation made a \$110 million challenge gift to endow one hundred new faculty chairs at the University of California, Berkeley; the foundation completed this matching challenge in only four years.

**Lever for Halting State Backsliding:** By making federal funds contingent on states maintaining their contributions (relative to baselines or regional trends) to participating public research universities, a federal match could incentivize states to halt divestment from higher education.

**Academic Freedom:** The new endowments would be structured and governed to protect and prioritize institutional autonomy and academic freedom over individual funders' interests.

Recent innovations in science funding might also point the way toward greater financial stability for public research universities. In 2012, six foundations launched the Science Philanthropy Alliance, which set a goal of increasing private funding of basic-science (or discovery-driven) research, which is largely conducted at universities, by \$1 billion per year.<sup>19</sup> This effort is principally a response to the steady decline in the federal investment in discovery-driven research.<sup>20</sup> Foundations might consider a similar initiative to **establish an alliance of private foundations for public research universities in response to the steady decline in state funding**. Such an arrangement could take a variety of forms. For example, an alliance of foundations could help **establish a new national endowment for public higher education**—similar to the American Cancer Society or the Nature Conservancy—that could become a trusted and secure instrument for subsequent charitable investments. Once such a fund is established, contributions could come from individuals, corporations, or venture capital and private equity firms, and the endowment could provide support to the states or directly to individual institutions.

*If adopted, the recommendations described in this section would help public research universities respond to their immediate financial challenges, while also laying the groundwork for sustainable long-term funding. Many of these ideas have already been tested by universities around the country and have proven successful, yielding significant savings and new funding streams. In addition to these financial gains, each recommendation would also help renew the important compact between public research universities and the public. These institutions have been and must continue to be serious and conscientious stewards of the public's trust. In return, the public should uphold its historical promise to support public research universities and the many services they provide—through state and federal contributions as well as private donations.*

*The recommendations described above are designed to help balance the delicate but critically important relationship between public research universities and the populations they serve, with the goal of preserving public research universities as we know them today. In the next section, we offer strategies to prepare public research universities to evolve and meet the societal demands of the future.*



## Section 2: Creating Public-Private Partnerships

In the previous section, we encouraged public research universities to look to state governments and the philanthropic community for sustaining support, including funding for core educational programs. There are compelling reasons why both groups should commit significant resources to these institutions. But we also understand that public higher education is only one of many interests competing for limited revenue. To do more than preserve the status quo, to evolve and expand to meet future public needs, public research universities will need to look beyond the states—and especially toward the business community—to find new

**20/50** Among the **fifty** higher education institutions worldwide most successful in creating venture capital–supported entrepreneurs, **twenty** are U.S. public research universities.<sup>21</sup>

### Public Research Universities Contribute to the Innovation Economy

The top innovation clusters in the country are affiliated with and are geographically near research universities, both public and private. Many universities have created innovation accelerators that encourage a culture of entrepreneurship by sponsoring start-up competitions, providing seed funding, or offering catalyst grants, while also serving as magnets for business and industry.

**Georgia Research Alliance (GRA)** is an independent nonprofit organization that works in partnership with Georgia's Department of Economic Development and the University of Georgia, Augusta University, Emory University, Clark Atlanta University, Georgia Institute of Technology, Georgia State University, Mercer University, and Morehouse School of Medicine. Since its formation in 1990, GRA has leveraged \$600 million of state funding into \$3 billion-plus of direct federal and private investment in Georgia, more than one hundred and fifty newly launched companies, and more than six thousand high-skill, high-value jobs.<sup>22</sup>

**Business Leaders for Michigan (BLM)** is the state's business roundtable, a private, nonprofit organization composed of the leaders of Michigan's largest businesses and universities, including the University of Michigan, Michigan State University, and Wayne

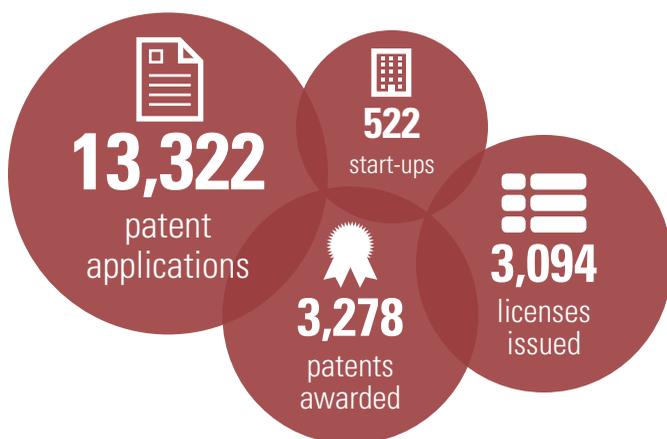
State University. BLM's members power one-quarter of the state's economy and educate nearly one-half of the state's university students. The organization is guided by the Michigan Turnaround Plan, a strategy developed to make Michigan a "top ten" state for jobs and personal income. Since its launch in 2009, more than 250,000 jobs have been created, and both personal income and the Michigan population is growing.<sup>23</sup>

**Texas Research Alliance (TRA)** was created by the Alliance for Higher Education and four chambers of commerce "to improve the research capabilities of [Dallas–Fort Worth] universities by collaborating to create impactful corporate/university partnerships." Partner universities include the University of Texas at Dallas, the University of Texas at Arlington, the University of North Texas Health Science Center, the University of North Texas, Southern Methodist University, and Texas Christian University. TRA hosts annual demonstration days to showcase research opportunities to industry partners; organizes immersion events to spur joint industry-academic research projects; and sponsors centers of excellence and consortia among universities and industry to develop strategic growth areas for research and infrastructure.<sup>24</sup>

partners. Fortunately, there is reason to believe that the private sector is willing to work with public research universities.

Industry and higher education already share a mutual dependency: industry looks to public research universities for research discoveries and workforce talent, and public research universities look to industry for funding, careers for graduates, and a way to bring the benefits of research to the public. Over the past two decades, public universities have launched efforts to stimulate economic

### Between 2012 and 2013,<sup>25</sup> research at public universities resulted in more than:



development and to provide outlets for students and faculty to commercialize their research findings. American public research universities now make up twenty of the top fifty universities in the world as ranked by venture capital-supported entrepreneurial activity.<sup>26</sup>

These are positive signs, and reason to believe that public-private partnerships can help bring public research universities into a new technological age. Decades of accumulated policies and practices, however, have created barriers

to a more seamless public-private compact. For example, negotiations over the licensing of university-derived technology are often so complicated and tedious that they overtax university laboratories, create unnecessary expenses, and discourage fast-paced companies from pursuing partnerships in the first place. In effect, the business community gives up its access to university talent and expertise while public research universities relinquish their claims to corporate support, as well as potential internships and employment opportunities for their graduates.

## Business Partners

The first step toward a greater public-private compact, therefore, is to **simplify the terms of exchange between public research universities and business**. For example, public research universities could promote the use of standard master agreements to simplify the prohibitively complex licensing negotiations that are so common today, accelerating the transfer of scientific, technological, and humanistic research for commercial development.<sup>27</sup> Some universities have already started to employ standard master agreements that allow many businesses to work directly with university laboratories. Many other public research universities should test this approach—perhaps forgoing

some licensing revenue—in the hope that a more open and flexible approach will encourage more explorations and yield more innovations. It may even help encourage a more loyal and generous alumni community over the long term, as imaginative students begin to see their universities as a help rather than a hindrance to the process of bringing discoveries to market.<sup>28</sup>

Simplifying the licensing process will undoubtedly make universities more attractive partners. However, such procedural changes should also be accompanied by a cultural shift. Both business and public research universities need to acknowledge the great potential of properly mediated partnerships, and **universities, in particular, must actively signal to businesses that they are willing partners**. They could send representatives to major industry conferences where business leaders are already thinking about business partnerships, such as the J.P. Morgan Healthcare Conference or the Bloomberg Future of Energy Summit. Such overtures could be an important first step in building transformative relationships and could become a regular feature of the marketing and development strategies of all public research universities. They might also consider more radical approaches to facilitate new partnerships, including the **establishment of dedicated research funds, developed through philanthropic and corporate giving, that would provide stable sources of support for new research and development**. Incubator funds could be distributed to ambitious faculty eager to carry their

## Public Research Universities are Centers for Discovery

Many important research discoveries have come out of public research universities.<sup>29</sup> These advances have improved our health and quality of life, and have contributed to our economic growth:

- Important antibiotics, including streptomycin, were discovered at **Rutgers University**.<sup>30</sup>
- Life-saving safety devices, including retractable locking seatbelts, were created at the **University of Minnesota**.<sup>31</sup>
- The CRISPR gene editing system was coinvented by a researcher at **University of California, Berkeley**, receiving the 2015 Breakthrough of the Year award from the editors of *Science*.<sup>32</sup>
- East Texas's blueberry industry and increased watermelon production resulted from agricultural research conducted by **Texas A&M University** AgriLife Research. The agency's research can claim an estimated regional economic impact of more than \$1.2 billion.<sup>33</sup>
- The lithium-ion battery, a critical component of smartphones and tablets, was developed by faculty at the **University of Texas at Austin**.<sup>34</sup>
- The quantum-well laser technology behind modern fiber-optic communications and the first widely used global web browser were developed at the **University of Illinois at Urbana-Champaign**. Each gave rise to a multi-billion dollar industry.<sup>35</sup>
- Touch screens were developed at the **University of Kentucky**, and multiscrolling capabilities originated at the **University of Delaware**.<sup>36</sup>
- The U.S. Social Security system was developed using social science research conducted at the **University of Wisconsin**.<sup>37</sup>
- The advancement of modern industries based on information technology, nanotechnology, and biotechnology that drive our high-tech economy rely on basic research conducted at our **public universities**.<sup>38</sup>

ideas through to market, in exchange for equity in those ideas. Such seed funding could come from a dedicated pool of resources that would grow through contributions from alumni and, perhaps, industry partners interested in collaboration.

Technology transfer is not the only benefit of improved relations between public research universities and the business community. The private sector can also partner with universities to **create well-paying internship programs, offering new opportunities for students to finance their educations and to learn skills that will be immediately useful after graduation.** For example, the Raytheon–UMass Lowell Research Institute, which launched in October 2014 on the Lowell campus, provides opportunities for UMass Lowell faculty and students to collaborate with Raytheon Company employees on research projects, while increasing both organizations' eligibility for federal research funding.<sup>39</sup> At the University of Michigan, the Dow Sustainability Fellows Program—made possible by the Dow Chemical Company—supports full-time masters students, doctoral students, and postdoctoral fellows across a broad range of disciplines, providing \$20,000 toward each Dow Sustainability Fellow's studies to find solutions to complex issues in sustainability. Since

**Raytheon employs approximately one thousand UMass Lowell graduates, and views the Raytheon–UMASS Lowell Research Institute partnership as an important step in closing the skills gap in its workforce and the technology gap between university research and industry.**

it began in 2012, the program has invested \$4.2 million to support 340 students from over a dozen different disciplines.<sup>40</sup>

Corporations might also consider more-direct forms of support, particularly in areas that align their interests with those of public research universities, **including by providing scholarship funds to universities that educate valued new employees.**

The most effective strategies to advance

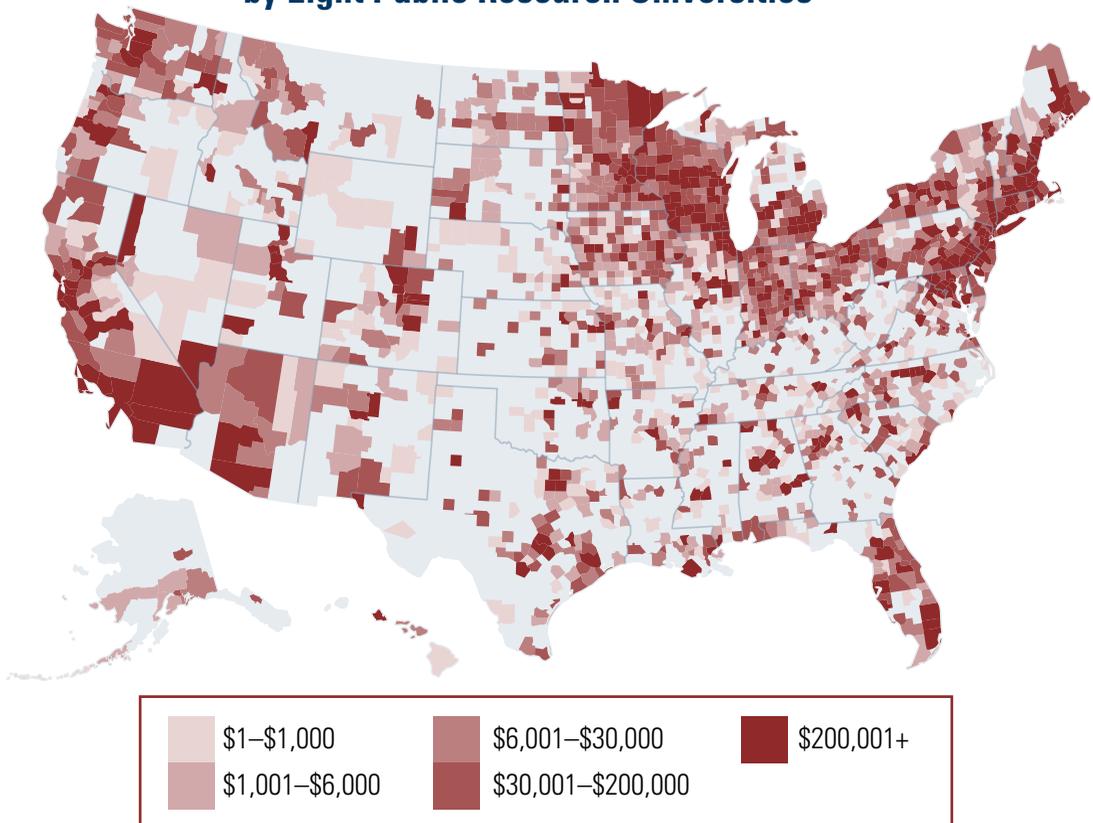
this goal openly acknowledge the importance of public research universities to corporate success. For example, when a corporation uses a search firm to identify new talent, it customarily pays the firm roughly one-third of a new hire's starting salary. Corporations might consider replicating this model as they hire college graduates: they could contribute one-third of a graduate's first-year salary for each graduate they hire—whether the new hires are citizens or eligible participants in an H-1B visa program. Such contributions would be tax deductible and, more important, would acknowledge and help sustain the educational institutions upon which corporations have come to depend.

As public research universities and their partners from the business community establish such mutually beneficial collaborations, they also need to work together to communicate the powerful and positive impact such programs have on individual students and companies, as well as on regional and national economies as shown for eight public research universities in Figure 8).

**Corporations should be among the most proactive advocates of America's public research universities,** and their vocal support would be particularly useful in the current political

climate. For their part, public research universities need to mobilize more of their supporters—from alumni to policy-makers to CEOs—to emphasize the tangible benefits that public research universities provide: well-rounded students from all backgrounds, an educated workforce, essential research, a vital cultural life, and a vibrant local and regional economy.

Figure 8: **Distribution of Research Spending by Eight Public Research Universities**



The map shows county-level vendor and subcontractor spending for project research sponsored by eight public research university campuses: Ohio State University, Pennsylvania State University, Purdue University, Indiana University, University of Iowa, University of Michigan, University of Minnesota Twin Cities, and University of Wisconsin—Madison. **Between the third quarter of 2013 and the second quarter of 2014, these campuses spent over \$1.76 billion to purchase goods and services from vendors in 1,750 counties across the United States.** Source: IRIS (Institute for Research on Innovation and Science). IRIS principal investigators include James Evans, University of Chicago; Julia Lane, New York University; Barbara McFadden Allen, CIC (Committee on Institutional Cooperation); Jason Owen-Smith, University of Michigan; and Bruce Weinberg, Ohio State University. Visit <http://iris.isr.umich.edu/> for more information. See also Bruce A. Weinberg, Jason Owen-Smith, Rebecca F. Rosen, Lou Schwarz, Barbara McFadden Allen, Roy E. Weiss, and Julia Lane, "Science Funding and Short-Term Economic Activity," *Science* 344 (6179) (2014): 41–43.

## Federal Assistance

**The federal government can also play an important role in encouraging new public-private partnerships.** This idea is elaborated on in the American Academy of Arts & Sciences report *Restoring the Foundation: The Vital Role of Research in Preserving the American Dream* (2014).<sup>41</sup> The report calls for the federal government to help universities pursue research partnerships with industry, highlighting the many rewards of bringing the two sectors closer together: faster technology transfer, greater knowledge transfer between faculty researchers and private sector employees, more opportunities for students to gain important private sector experience, and a new source of funding for novel research pursuits. Public research universities are a critical component of this research ecosystem, connecting faculty researchers and their intellectual capital with the private sector. As such, public research universities require and deserve federal attention as well as state support.

More generally, public research universities connect American citizens to one another and to new ideas: as centers of scholarly discussion, artistic and cultural exchange, civil debate, and scientific exploration. In recent years, Congress and the executive branch have explored ideas for funding the restoration of the nation's physical infrastructure, including plans to incentivize the return of corporate earnings from abroad. Lawmakers have contemplated a modest tax on returned earnings to create a new fund for infrastructure projects. As these conversations continue and evolve, **policy-makers should broaden their understanding of infrastructure to include our intellectual infrastructure, which is no less important to the nation's future than our roads and bridges.** For example, U.S.-based multinational corporations generate income from an estimated \$2.1 trillion invested outside the United States.<sup>42</sup> A one-time repatriation of 1 percent of this amount, set aside for the nation's *intellectual* infrastructure, could generate tens of billions of dollars for higher education—a transformational sum for public research universities across the country.

*Such a bold contract between the public and private sectors would not only preserve public research universities as we know them, it would prepare these institutions to play an even more vital role in American life in the decades ahead. We cannot expect public research universities to fend for themselves without the support of their states. Nor can we expect that public research universities will continue to serve us, our businesses, and our communities without our support. The benefits of a robust and evolving national system of public research universities are unmistakable—for students, for business, and for the nation. So, too, are the responsibilities we all share to sustain and grow these centers of learning and research in every state.*

## Section 3: Serving Students

**In the end, a university is only as successful as its students.** Are they receiving a well-rounded education that prepares them for productive work and a fulfilling life? Are they learning to be creative thinkers and active citizens? As public research universities find ways to trim costs, form new partnerships, and adjust their offerings—all in response to new financial realities—they cannot lose sight of their foundational missions: to provide the best possible education to students who represent a true cross section of their state compositions. Fortunately, the intersections between the needs of students and the needs of the universities present practical opportunities to strengthen the whole enterprise.

The average median midcareer salary for graduates of public research universities is

**\$82,161**<sup>43</sup>



### Simplifying Financial Aid

Every year, more than sixteen million students, usually with the help of their families, fill out the Free Application for Federal Student Aid (FAFSA).<sup>44</sup> The FAFSA, administered by the U.S. Department of Education, allows college students to apply for federal grants (including Pell Grants), loans, and work-study funds. The application consists of 108 questions and 88 pages of instructions, the completion of which is overly complicated and burdensome, especially for low-income families and first-generation college students.<sup>45</sup> While Congress has already enacted measures to simplify the application, more than one million students (most of whom are eligible for Pell Grants) still fail to complete the application each year, many simply discouraged by the complexities of the application.<sup>46</sup> **To help ensure equitable access for all qualified students, and also to reduce administrative costs, the financial aid system must be simplified.** Since most of the information needed to calculate financial aid eligibility is already collected by the Internal

Revenue Service (IRS), Congress is working to reduce the FAFSA to two questions: “What is your family size?” And “What was your household income two years ago?” Students would then submit an IRS Form 1040 to

receive information about qualifying for loans, grants, and tax credits.<sup>47</sup> This streamlined process, or some variation thereof, would be a dramatic step toward the goal of connecting financial aid with the students who most need it.



#### Simplifying the FAFSA:

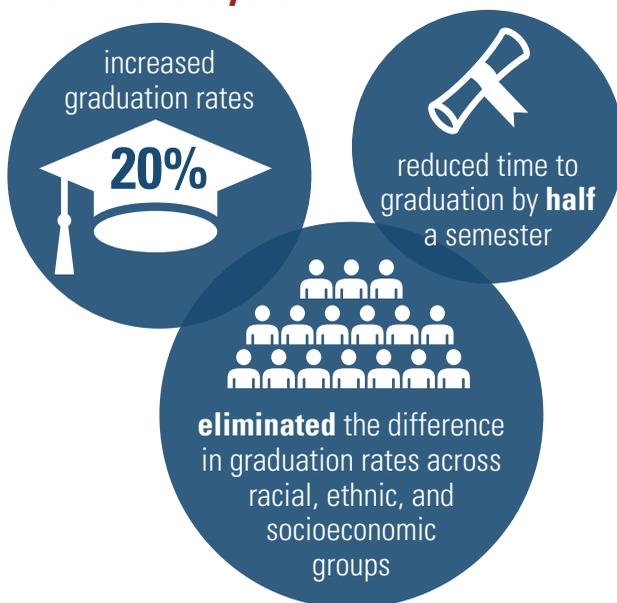
Congress is working on a proposal that would reduce the FAFSA from 108 questions to a single page with two questions.

## Tracking Student Performance

A simplified FAFSA would help more students find the means to attend public research universities. However, once students enroll, they are confronted with an entirely new set of challenges, including the pressure to graduate on-time. In 2013, the six-year graduation rate for first-time, full-time undergraduate students at public research universities was 62 percent.<sup>48</sup> Institutions have long struggled to improve student time-to-degree rates, as well as student retention and graduation rates. But new advances in data analytics may provide administrators with the tools they need to **monitor student achievement and offer remedial assistance where and when it is needed.**

One of the most creative and effective uses of this strategy was pioneered at Georgia State University. With thirty thousand students, 87 percent of whom receive financial aid and 56 percent of whom are Pell Grant recipients, Georgia State serves an important segment of American society. Over the past decade, the university has dramatically improved retention and graduation rates across all ethnic and racial groups, even as its student body has become more diverse (61 percent came from underrepresented populations in 2015). By tracking information like student performance, grades, and class registration, and by applying a custom set of predictive analytics, Georgia State's Web-based tracking system GPS (Graduation and Progression Success) Advising has been able to predict student success and progress and has fine-tuned a system for intervening when students are at risk of failing or dropping out. The system alerts advisers in real time when a student takes an action that threatens his or her progress, such as by failing a midterm. The one-on-one interventions led by advisors are inexpensive and effective, resulting in a 20 percent increase in graduation rates, reducing time to graduation by half a semester, and eliminating the differences in graduation rates among racial, ethnic, and socioeconomic groups.<sup>49</sup>

### By tracking student performance, Georgia State University has:



## Improving Transfer Pathways

**Faster time-to-degree rates, like easier access to financial aid,** ultimately make postsecondary education more affordable for more students—and possibly less expensive for universities to provide. Improved transfer pathways from community colleges to four-year institutions, a particular concern of public research universities, produce similar benefits. Research has shown that students who transfer from community colleges to public universities are 1) more likely to come from lower-income families than are students who transfer from four-year institutions, and 2) more likely to complete their educations than are students who transfer to private nonprofit institutions or for-profit institutions.<sup>50</sup> In the University of California system, more than one-third of incoming students are community college transfer students; and these transfer students graduate with the same grade point averages and at the same rates as students who entered university directly from high school.<sup>51</sup> Transfer agreements such as 2+2 programs—which allow students to complete the first two years of their undergraduate education at a community college and then earn their degree after two years at a four-year institution—also enable diligent, qualified students to earn bachelor's degrees at significantly reduced costs. One such program, Direct Connect at the University of Central Florida (UCF), guarantees admission to the university to students who earn an associate's degree from one of several partner colleges.<sup>52</sup> In 2014, associate's-degree transfers earned 48 percent of all bachelor's degrees awarded by UCF.<sup>53</sup>

Public research universities should **work closely with transfer partners and continue to establish transfer pathways** as important elements of their public missions that create opportunities for both individual students and institutional savings. They should also **encourage the development of online interactive gateway courses and predictive tuition agreements between institutions.** This would enable community college students to more easily complete required prerequisite courses at a set cost in advance of transferring to a four-year degree program.

*Each of these innovations, from transfer programs to data analytics, serves universities as well as individual students and their families. They advance the social missions of public research universities by helping expand student populations, and they fulfill the fiscal responsibilities of university administrators by reducing expenses without sacrificing educational quality. Clearly, more can be done to improve student outcomes—which is more, not less important in an era of diminishing resources. But these relatively simple adjustments can have a major salutary effect on the experiences of millions of undergraduates.*

## Conclusion

### What Public Research Universities and Their Partners Should Do

As the financial model of public research universities changes, driven primarily by diminishing contributions from the states, these institutions must find ways to respond to their pressing needs while also building for the future. The Lincoln Project has focused on the universities as the principal actors. They have the most at stake in addressing these challenges, and they have more options at their disposal, from cost-cutting to tuition increases to regional partnerships. But public research universities cannot solve their financial challenges without help. They need

new partners, especially among those who benefit most directly from the services that the universities provide.

#### Recommitting to Lincoln's Vision: An Educational Compact for the 21st Century

In the twenty-first century, public research universities will require support from all sectors—a compact among state and federal governments, universities, businesses, and philanthropies to share responsibility for institutions critical to American education, research, culture, and competitiveness.

The suggestions offered by the Lincoln Project are largely designed to attract such partners. State and federal government, business, and the philanthropic community all have roles in forging the new compact needed to sustain and strengthen public research universities. We urge these partners to work together and to be bold in pursuing the ideas presented here. Most public research universities have already undertaken some of the initiatives we recommend, and each should expand

its strategies to adopt those recommendations most applicable to its specific context. We are confident that these recommendations, implemented in combination, will help public research universities evolve to meet new challenges and societal demands in a sustainable long-term model, while continuing to pursue their collective mission of ensuring excellence and access in public higher education.

## Recommendations for Public Research Universities

- Establish annual cost and efficiency targets, and publish progress reports for the university community and the broader public.
- Form alliances with other colleges and universities (public or private, state or regional) to facilitate research partnerships, shared course offerings, collective purchasing contracts, common facility usage, and collaborations on innovative programs.
- Explore and pursue new revenue streams consistent with the fundamental values of public research universities.
- Enhance advancement and development activities within the institution, emphasizing unrestricted giving in support of core educational goals.
- Pursue multipartner capacity-building matching programs. For example, state and federal agencies working together with philanthropic partners could provide transformational support for university faculty.
- Signal to the business community that universities are willing partners by accelerating and simplifying the transfer of knowledge to the private sector.
- Encourage governing boards to pursue the expertise needed to adjust to new funding models.
- Provide comprehensive financial aid to low-income in-state undergraduate students.
- Track student performance in real time and intervene appropriately to improve student success.
- Improve transfer pathways from community colleges and via online interactive gateway courses.

## Recommendations for State Government

- Find alternative strategies to balance the budget besides cutting university funding. Higher education cannot continue to be the “balance wheel” for state budgets without compromising either the public character of public research universities or their educational missions.
- Reverse cuts made over the last decade, restoring funding to pre-recession levels, incrementally if not in their entirety at once.
- Establish long-term funding goals, including targets for the growth of state investment, to stabilize support and assist universities in long-term planning.
- Create state incentives for corporations to support scholarships at public research universities—either at individual institutions or at multiple institutions—since corporations draw heavily upon the talent pool and research generated by these institutions.
- Provide comprehensive financial aid to low-income in-state undergraduate students.
- Encourage improvements in transfer pathways from community colleges.
- Reduce unfunded regulatory mandates.

## Recommendations for the Federal Government

- Recognize that the intellectual infrastructure of the nation is as important to the future as the physical infrastructure.
- Incentivize corporate and philanthropic contributions to public higher education through matching programs and tax breaks.
- Simplify the Free Application for Federal Student Aid (FAFSA).
- Through challenge programs, encourage partnerships between state governments, federal agencies, private philanthropists, and public research universities (such as a three-way partnership to provide ten thousand endowed faculty chairs over ten years).
- Review and reduce unfunded federal regulatory mandates.

## Recommendations for the Private Sector

- Acknowledge the importance of public research universities to the preparation of the American workforce by supporting public research university scholarships and internships.
- Promote partnerships among private foundations, similar to the Science Philanthropy Alliance, to combine resources and support student access to public research universities.
- Cooperate with universities to develop licensing policies that accelerate the transfer of knowledge and research from campuses to the public.
- Engage in public advocacy (in each state) on behalf of public research universities and in support of the nation's intellectual infrastructure.
- Consider a new national endowment for public higher education, including public research universities.

The challenges to public research universities are clear. However, considering the importance of these institutions to students, local communities, and the nation, we must all assume responsibility for their future. Each of us—whether a student, parent, business owner, voter, or leader in the corporate, governmental, or philanthropic world—must become more assertive in our support of public research universities. These institutions are an essential feature of our intellectual heritage and have evolved over time to become critical drivers of our economic, political, and cultural lives. We cannot allow these essential institutions to erode. The burdens of stewardship fall upon us all.

## Appendix: Cutting Costs and Generating New Revenue: Strategies in Action

Since the Great Recession, states have reduced their contributions to public higher education; for example, California cut \$220 million from the budget of the University of California, Berkeley alone. The Lincoln Project proposes a range of programs, to be adopted in combination, to help public research universities make up the budgetary shortfall, bring stability to their institutions, and ensure excellence in education in the twenty-first century. Many institutions have already created such programs, with great success. Here are a few examples:

### Cost Efficiencies

- The University System of Maryland's Effectiveness and Efficiency Initiative yielded \$356 million in savings during its first ten years.<sup>54</sup>
- Through aggressive price negotiations with suppliers, the University of Pittsburgh's cost saving efforts have saved more than \$120 million over the past five years.<sup>55</sup>
- Miami University's MU-Lean project, launched in 2009, has identified \$37 million in savings and new revenues.<sup>56</sup>
- The Purchasing Consortium for the Committee on Institutional Cooperation, which includes fifteen Midwestern universities, has saved \$7.5 million by negotiating prices with campus suppliers, including Enterprise Holdings, Inc., and OfficeMax.<sup>57</sup>

### New Revenue Streams

- The University of Virginia, the University of Texas at Austin, and the University of California, Los Angeles have successfully launched or completed \$3 billion-plus campaigns.
- The University of Wisconsin, Madison completed a \$100 million matching challenge from a private donor to support chairs and professorships.
- The University of Texas at San Antonio recently completed its first-ever capital campaign, raising \$180 million. The campaign, which also employed matching challenges, provided \$62 million for student scholarships and fellowships, \$44 million for faculty support, \$19 million for research and outreach, and \$50 million for student life and facilities.<sup>58</sup>
- Ohio State University brings in more than \$20 million per year from relationships with corporate partners, including through student internships and sponsorships. By leasing out its parking system, the university has also generated \$483 million, which was invested in the university's endowment, generating \$62 million annually for scholarships, faculty positions, and other academic priorities, such as research and teaching.<sup>59</sup>

## Endnotes

- 1 See National Center for Education Statistics, IPEDS [Integrated Postsecondary Education Data System] (U.S. Department of Education, Institute of Education Sciences), <https://nces.ed.gov/ipeds/>.
- 2 Ibid. Economic diversity at top colleges varies widely; see David Leonhardt, “California’s Upward-Mobility Machine,” *The New York Times*, September 16, 2015, <http://www.nytimes.com/2015/09/17/upshot/californias-university-system-an-upward-mobility-machine.html>.
- 3 National Center for Education Statistics, IPEDS Analytics: Delta Cost Project Database 2000–2012, <https://nces.ed.gov/ipeds/deltacostproject/>.
- 4 The Morrill Act of 1862, authored by Vermont representative Justin Smith Morrill, was signed into law by President Abraham Lincoln following the secession by several Southern states from the United States and the outbreak of the Civil War. The act originally limited its beneficiaries to those states not “in a condition of rebellion or insurrection against the government of the United States,” though the act was extended to every state in the Union following the end of the Civil War. A second Morrill Act, passed in 1890, confronted the racial discrimination of Southern universities, requiring states either to demonstrate that race was not a university admissions criterion or to provide a separate land-grant university for persons of color. While the act thus countenanced racial segregation in higher education, it also led to the founding of several historically black colleges and universities.
- 5 Additionally, 61 percent of first-time, full-time freshmen come from the top quarter of their graduating high school class, and 35 percent come from the top fifth. See *U.S. News & World Report*, U.S. News College Compass (2015), [http://www.usnews.com/usnews/store/college\\_compass.htm](http://www.usnews.com/usnews/store/college_compass.htm).
- 6 See National Center for Education Statistics, IPEDS.
- 7 National Center for Education Statistics, IPEDS Analytics: Delta Cost Project Database 2000–2012.
- 8 The variation in state appropriations for higher education means that states also vary greatly in their relative reliance on appropriations versus net tuition revenue. Alaska and Wyoming, which provide high levels of state support for public higher education, rely relatively little on net tuition. Colorado, New Hampshire, and Vermont, which provide relatively little state support for public higher education, rely heavily on net tuition. These differences reflect contrasting state philosophies about who should bear the costs of higher education: Vermont, for example, keeps tuition higher for those who can afford college and provides significant financial assistance for those who cannot. See Julie Davis Bell, *The Nuts and Bolts of the Higher Education Legislative Appropriations Process*, Getting What You Pay for Policy Brief (Boulder, Colo.: National Conference of State Legislatures and Western Interstate Consortium for Higher Education, November 2008), [http://www.wiche.edu/info/gwypf/bell\\_appropriations.pdf](http://www.wiche.edu/info/gwypf/bell_appropriations.pdf). State education appropriations per FTE student at public research universities are derived from State Higher Education Executive Officers (SHEEO) Association, *SHEE: FY 2014—State Higher Education Finance* (Boulder, Colo.: State Higher Education Executive Officers Association, 2015).
- 9 Delta Cost Project, *Trends in College Spending: 1999–2009* (Washington, D.C.: Delta Cost Project, 2011), [http://www.deltacostproject.org/sites/default/files/products/Trends2011\\_Final\\_090711.pdf](http://www.deltacostproject.org/sites/default/files/products/Trends2011_Final_090711.pdf); and Delta Cost Project, *Trends in College Spending: 2003–2013* (Washington, D.C.: Delta Cost Project, 2016), <http://www.air.org/system/files/downloads/report/Delta-Cost-Trends-in-College%20Spending-January-2016.pdf>.
- 10 That is, for every \$100 invested in postsecondary education, a person will earn an additional \$15 in income for every year of his or her working life. See Walter W. McMahon, *Higher Learning, Greater Good: The Private and Social Benefits of Higher Education* (Baltimore: Johns Hopkins University Press, 2009); and Adam Davidson, “Is College Tuition Really Too High?” *The New York Times*, September 8, 2015, <http://www.nytimes.com/2015/09/13/magazine/is-college-tuition-too-high.html>.
- 11 As stated earlier, 31 percent of all students enrolled at public research universities receive Pell Grants. The sizable enrollment of undergraduate students from low-income families reflects the mission of public research universities to serve all facets of U.S. society.
- 12 California Student Aid Commission, <http://www.csc.ca.gov/>.
- 13 Delta Cost Project, *Trends in College Spending 1999–2009*, 20; and University of Pittsburgh, *The University of Pittsburgh—Cost Containment Efforts* (Pittsburgh: University of Pittsburgh, 2012), <http://www.provost.pitt.edu/CostContainment.pdf>.
- 14 Association of Governing Boards of Universities and Colleges, *Consequential Boards: Adding Value Where It Matters Most* (Washington, D.C.: Association of Governing Boards of Universities and Colleges, 2014), 17.
- 15 These include the University of Chicago, the University of Illinois, Indiana University, the University of Iowa, the University of Maryland, the University of Michigan, Michigan State University, the University of Minnesota, the University of Nebraska–Lincoln, Northwestern University, Ohio State University, Pennsylvania State University, Purdue University, Rutgers University, and the University of Wisconsin, Madison.
- 16 Delta Cost Project, *Trends in College Spending 1999–2009*, 31; and American Academy of Arts & Sciences, *Public Research Universities: Understanding the Financial Model* (Cambridge, Mass.: American Academy of Arts & Sciences, 2016), 5–7.
- 17 Robert J. Birgeneau, Seth Garz, and Frank Yearly, *Knowledge Made in America: A Private-Public Funding Model for Leading Public Research Universities* (Berkeley: University of California, Berkeley, 2012).
- 18 Dean Karlan, John A. List, and Eldar Shafir, “Small Matches and Charitable Giving: Evidence from a Natural Field Experiment,” *Journal of Public Economics* 95 (2011): 344–350.

- 19 The Science Philanthropy Alliance's founding members include the Alfred P. Sloan Foundation, the Gordon and Betty Moore Foundation, the Howard Hughes Medical Institute, the Kavli Foundation, the Research Corporation for Science Advancement, and the Simons Foundation.
- 20 Jeffrey Mervis, "Billionaires for Basic Research," *Science* (ScienceInsider), February 27, 2015, <http://www.sciencemag.org/news/2015/02/billionaires-basic-research>.
- 21 PitchBook, "The Top 50 Universities Producing VC-Backed Entrepreneurs," *PitchBook Venture Capital Monthly*, August/September 2014, 5.
- 22 Georgia Research Alliance, [http://gra.org/page/1025/about\\_gra.html](http://gra.org/page/1025/about_gra.html).
- 23 Business Leaders for Michigan, <http://www.businessleadersformichigan.com/>.
- 24 Texas Research Alliance, <http://www.texasresearchalliance.org/>.
- 25 Association of University Technology Managers, *AUTM Licensing Activity Survey FY2013* (Deerfield, Ill.: Association of University Technology Managers, 2014).
- 26 PitchBook, "The Top 50 Universities Producing VC-Backed Entrepreneurs."
- 27 A master agreement sets standard terms that apply to all or most of the transactions between two agreeing parties. The terms of the master agreement automatically apply to each transaction and do not need to be renegotiated.
- 28 According to Stanford University Office of Technology Licensing, *Risky Business: Office of Technology Licensing Annual Report* (Stanford, Calif.: Stanford University, 2014), the use of master agreements, flexible partnerships, and investments in good relationships over the long term has fostered a sense of goodwill and encouraged Stanford's partners to continue to do business with the university in the future.
- 29 See American Academy of Arts & Sciences, *Public Research Universities: Serving the Public Good* (Cambridge, Mass.: American Academy of Arts & Sciences, 2016), 3–4.
- 30 Rutgers Waksman Institute of Microbiology, "History," <https://www.waksman.rutgers.edu/about/history>.
- 31 Steven John, "Ten Ways U Research Affects You," Minnesota Public Radio, February 2001, [http://news.minnesota.publicradio.org/projects/2001/02/universalu/topten/9\\_krations.html](http://news.minnesota.publicradio.org/projects/2001/02/universalu/topten/9_krations.html).
- 32 John Travis, "Making the Cut," *Science* [2015 Breakthrough of the Year] 350 (6267): 1456–1457.
- 33 Texas A&M AgriLife Research, "Research Impacts," [http://agriliferesearch.tamu.edu/about-agrilife-research/research\\_impacts/](http://agriliferesearch.tamu.edu/about-agrilife-research/research_impacts/).
- 34 Association of American Universities, *Riding the Wave of Federal Investment: How Federal Research Made the iPad Possible* (Washington, D.C.: Association of American Universities, 2014), <http://www.aau.edu/WorkArea/DownloadAsset.aspx?id=14900>.
- 35 Nick Holonyak, Jr., a John Bardeen Endowed Chair Emeritus in Electrical and Computer Engineering and Physics at the University of Illinois at Urbana–Champaign, was a contributor to the first practical quantum-well laser, which enabled modern fiber optics communication. Mosaic, an early web browser credited with popularizing the World Wide Web across the globe, was developed at the National Center for Supercomputing Applications at the University of Illinois Urbana–Champaign.
- 36 Association of American Universities, *Riding the Wave of Federal Investment*.
- 37 U.S. Social Security Administration, "Agency History—Research Note #8: The Special Role of the University of Wisconsin in the History of Social Security," <https://www.ssa.gov/history/wiscrole.html>.
- 38 Jonathan R. Cole, *The Great American University: Its Rise to Preeminence, Its Indispensable National Role, Why It Must Be Protected* (New York: Public Affairs, 2009), 205.
- 39 UMass Lowell, "Degrees to be Offered at Gulf University for Science and Technology," December 10, 2014, <http://www.uml.edu/News/press-releases/2014/UMLKuwait121014.aspx>; and UMass Lowell, "New Joint Research Facility to Become Epicenter of Academic and Industry Collaboration," August 12, 2014, <http://www.uml.edu/News/press-releases/2014/Raytheon08122014.aspx>.
- 40 Dow Sustainability Fellows, *Third Annual Report to the Dow Chemical Company* (Ann Arbor: University of Michigan, 2015).
- 41 American Academy of Arts & Sciences, *Restoring the Foundation: The Vital Role of Research in Preserving the American Dream* (Cambridge, Mass.: American Academy of Arts & Sciences, 2014).
- 42 Audit Analytics, "Overseas Earnings of Russell 1000 Tops \$2 Trillion in 2013," Audit Analytics Blog, April 1, 2014, <http://www.auditanalytics.com/blog/overseas-earnings-of-russell-1000-tops-2-trillion-in-2013/>.
- 43 The figure presented is the average of institutional median salaries at public research universities. This average is for midcareer salaries of alumni with bachelor's degrees only. See PayScale, "2014–2015 PayScale College Salary Report," <http://www.payscale.com/college-salary-report>.
- 44 Executive Office of the President, Council of Economic Advisers, and the National Economic Council, *Simplifying Student Aid: The Case for an Easier, Faster, and More Accurate FAFSA* (Washington, D.C.: Executive Office of the President of the United States, September 2009).
- 45 The Editorial Board, "Time to Fix the FAFSA," *The New York Times*, August 27, 2015, <http://www.nytimes.com/2015/08/27/opinion/time-to-fix-the-fafsa.html>.

46 Simplification measures already approved by Congress include the auto-zero test, which allows eligible students to check a box indicating that they have a household income of less than \$24,000, automatically awarding them the maximum amount available through a Pell Grant, and the simplified needs test, which ignores assets for eligible students (such as those with household income of less than \$50,000), thus increasing the number of students eligible for financial aid.

47 Senators Lamar Alexander and Michael Bennet are sponsoring a bill known as the Financial Aid Simplification and Transparency (FAST) Act. The senators have cited economic analysis from Susan M. Dynarski and Judith E. Scott-Clayton, “The Cost of Complexity in Federal Student Aid: Lessons from Optimal Tax Theory and Behavioral Economics,” *National Tax Journal* 59 (2) (June 2006): 319–356.

48 The 1990 Student Right-to-Know Act requires colleges to disclose information on the proportion of students “completing their program within 150 percent of the normal time to completion.” As a result, four-year colleges report the proportion of students who earn bachelor’s degrees within six years to the federal government through the Integrated Postsecondary Education Data System (IPEDS). See National Center for Education Statistics, IPEDS.

49 Sophie Quinton, “Georgia State Improved Its Graduation Rate by 22 Points in 10 Years,” *The Atlantic*, September 23, 2013, <http://www.theatlantic.com/education/archive/2013/09/georgia-state-improved-its-graduation-rate-by-22-points-in-10-years/279909/>.

50 Matthew M. Chingos, Michael S. McPherson, and William G. Bowen, *Crossing the Finish Line: Completing College at America’s Public Universities* (Princeton, N.J.: Princeton University Press, 2009); and Davis Jenkins and John Fink, *Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor’s Degrees* (New York: Community College Research Center, Teachers College, Columbia University, January 2016), <http://ccrc.tc.columbia.edu/media/k2/attachments/tracking-transfer-institutional-state-effectiveness.pdf>.

51 University of California, “Fall Enrollment Headcounts,” <http://www.universityofcalifornia.edu/infocenter/fall-enrollment-headcounts>; and University of California, *Annual Accountability Report—2015* (Oakland: University of California, 2015).

52 See University of Central Florida, “DirectConnect to UCF,” <http://regionalcampuses.ucf.edu/connecting-is-easy/>.

53 Sophie Quinton, “Why Central Florida Kids Choose Community College,” *The Atlantic*, February 10, 2014, <http://www.theatlantic.com/politics/archive/2014/02/why-central-florida-kids-choose-community-college/430605/>.

54 Delta Cost Project, *Trends in College Spending 1999–2009*, 20.

55 University of Pittsburgh, *The University of Pittsburgh—Cost Containment Efforts*.

56 Kristal Humphrey, “Lean Training at Miami Gains Weight with a \$250,000 Grant,” Miami University Campus News, January 7, 2016, <http://miamioh.edu/news/campus-news/2016/01/lean-grant.html>.

57 Committee on Institutional Cooperation, *2014–2015 Annual Report: The Power of the Collective* (Champaign, Ill.: Committee on Institutional Cooperation, 2015), 11, <https://www.cic.net/docs/default-source/reports/cic-annual-report-feb2016.pdf?sfvrsn=6>; and Committee on Institutional Cooperation, “Purchasing Consortium,” <https://www.cic.net/projects/purchasing-and-licensing/purchasing/introduction>.

58 “UTSA Raises \$180 Million in First-Ever Capital Campaign, Exceeds Goal by More than \$60 Million,” *UTSA Today*, October 6, 2015, <http://www.utsa.edu/today/2015/10/capitalcampaign.html>.

59 Data drawn from responses to a survey the Lincoln Project sent to public research universities nationally.





## **The Lincoln Project: Excellence and Access in Public Higher Education**

Download all five Lincoln Project publications at [www.amacad.org/lincoln](http://www.amacad.org/lincoln).

*Why They Matter, Changes in State Funding, Understanding the Financial Model, Serving the Public Good, and Recommitting to Lincoln's Vision: An Educational Compact for the 21st Century*

# The Lincoln Project: Excellence and Access in Public Higher Education

## Advisory Group

**Robert Birgeneau**, *Cochair*, University of California, Berkeley

**Mary Sue Coleman**, *Cochair*, University of Michigan

**Lawrence S. Bacow**, Harvard Kennedy School

**Gene D. Block**, University of California, Los Angeles

**Henry Brady**, University of California, Berkeley

**Phil Bredesen**, former Governor of Tennessee

**Nancy Cantor**, Rutgers University–Newark

**John T. Casteen III**, University of Virginia

**Jonathan Cole**, Columbia University

**Gray Davis**, former Governor of California

**Patrick Doyle**, Domino's Pizza, Inc.

**David B. Frohnmayer**†, University of Oregon

**E. Gordon Gee**, West Virginia University

**Matthew Goldstein**, The City University of New York

**Donald Graham**, Graham Holdings Company

**Carl Guardino**, Silicon Valley Leadership Group

**Robert D. Haas**, Levi Strauss & Co.

**Jim Hackett**, Ford Smart Mobility, LLC

**Ann Weaver Hart**, University of Arizona

**Michael Hout**, New York University

**Kay Bailey Hutchison**, former United States Senator, Texas

**Jim Leach**, University of Iowa

**Earl Lewis**, The Andrew W. Mellon Foundation

**Ann Marie Lipinski**, Nieman Foundation for Journalism at Harvard University

**George Miller**, former United States Representative, California

**William Powers, Jr.**, The University of Texas at Austin

**John Rogers**, Ariel Investments

**Thomas Siebel**, C3 Energy; First Virtual Group

**Shirley M. Tilghman**, Princeton University

**Phyllis M. Wise**, University of Illinois at Urbana-Champaign

**Frank Yeary**, CamberView Partners LLC; University of California, Berkeley

**Pauline Yu**, American Council of Learned Societies

## Funders

The William and Flora Hewlett Foundation

The Spencer Foundation

Carnegie Corporation of New York

Thomas and Stacey Siebel Foundation

Robert and Colleen Haas

## Project Staff

**Samantha Carney**

**Eliza Berg**

**John Tessitore**

**Dorothy Koveal**

**Elissa Chin Lu**, *Consultant*

**Beata FitzPatrick**, *Consultant*

† *Deceased*



AMERICAN ACADEMY  
OF ARTS & SCIENCES