

## **The Federal Role in Supporting Public Universities' Global Missions**

By Lou Anna K. Simon, Richard M. Foster, and John C. Austin<sup>1</sup>

America's "super-league" of global universities will play an increasingly pivotal role in the 21<sup>st</sup> century economy. These universities' substantial metropolitan and regional economic contributions are magnified by the role they play in fueling innovation, boosting educational attainment, and engaging with the rest of the world on an increasingly complex and interconnected set of issues.<sup>2</sup> Reflecting what Michigan State University President Lou Anna K. Simon calls the "World Grant Ideal," world class universities oriented toward public engagement in the land-grant tradition offer unparalleled capacity for collaboration, globalism, stewardship, innovation, and sustainability.

The federal government can aid in the economic transition of the Great Lakes and its older industrial metros by helping to support the capacities and new potential these institutions offer, extending the spirit and mission of federal land grant universities into the "next economy." To this end, this paper calls for federal support to stimulate the first cluster of "World-Grant" universities to both refresh the region's (and nation's) competitiveness in cutting edge technologies, and to better connect the older industrial metros where many of these institutions reside to the world at large.

### **America's Challenge**

No U.S. region possesses a richer array of institutional assets than the Great Lakes region. The 21 largest Great Lakes metros alone are home to 32 major research universities, as classified by the Carnegie Foundation for the Advancement of Teaching. In the latest 2009 rankings of the world's top universities compiled by Shanghai Jiao Tong University, 16 of the top 100 universities in the world were located in the Great Lakes region, more than in any other comparable geography.<sup>3</sup>

The large universities of the region educate the nation's talent that drives innovation, particularly in the coveted STEM (science, technology, engineering, and math) disciplines. The region produces approximately 36 percent of the nation's science and engineering graduates annually and 37 percent of the nation's advanced science and engineering graduates.<sup>4</sup> Anchored by these world-leading universities, the region also is a heavy contributor to the nation's innovation. Data compiled by the National Science Foundation (NSF), for example, shows that 2006 university and industry research expenditures in the Great Lakes states represent 33 percent of the U.S. total.

Great Lakes universities are well-positioned to become major players in the global marketplace, addressing such challenges as global energy, food, and water security; health care and medicine; and human capital development—and in the process create new jobs and economic activity back home. Such activity is already evident in the

recent expansion of the Cleveland Clinic to Abu Dhabi; in Michigan State's growing partnership with international information technology company IBM; in University of Michigan Engineering and Business School partnerships in China and Eastern Europe; and in the many other Great Lakes institutions that are building strong links to China, India, and emerging markets.

Meanwhile, these universities also draw top talent, students, and money from across the globe directly back to their communities. According to Brookings' analysis of data from the International Institute for Education, during the 2008-2009 academic year, colleges and universities in the 21 largest Great Lakes metros alone educated over 84,000 foreign students who spent approximately \$2.3 billion in tuition and living expenses.<sup>5</sup>

But for all this, Great Lakes universities' research and educational capacities are increasingly at risk. The economic foundations of states in the region have been eroding for years, while costs for public services have increased. State support for public research universities was already at its lowest level in 25 years even before the recent recession, dropping more than 15 percent in the last two decades.<sup>6</sup> The impacts are shouted in today's headlines: rising tuition, higher institutional costs and cutbacks that jeopardize access, quality, and competitiveness.

Yet the economic pain felt by Great Lakes states has not prompted cooperative efforts to view their assets as regional in nature—or national in importance—nor to leverage them as a collective effort toward addressing the pressing problems of the new century. Rather, it has prompted fierce and mutually harmful competition. Fiscal and other incentives dangled before targeted industries further cut into state revenues, creating a discount mentality wherein public concessions are a starting point for consideration of any private investment. The result is a downward spiral in state and local units' ability to provide essential services, while adding incentives for mobile knowledge workers and employers to leave. Private investment inevitably follows the talent, often to coastal or southern regions, which accumulate human and financial assets in a virtuous cycle at the expense of Great Lakes communities.

The upshot of all this is that state funding is not only inadequate to achieve state goals, but state goals no longer aggregate to serve national priorities.

### **Limitations of Existing Federal Policy**

The federal government has not yet intervened in a sustainable manner to help fill the growing void in state resources, undercutting the national objectives—conducting research, licensing and transferring technology, and providing global access to markets and human resources—these institutions help fulfill. In short, while global conditions, relationships, and expectations have changed, funding for our major institutions of innovation and progress has not.

***Federal policy helped create the nation's network of global public research-intensive universities, but that commitment has since waned.*** Major research

universities, often with affiliated medical complexes, contribute to the large and growing share of the U.S. economy's research and innovation, wealth, and jobs. The opportunities they provide today are no less potentially transformative than those that spurred earlier federal interventions in higher education. The 1862 Morrill "Land Grant" Act, for example, brought higher education to the common citizen and laid the groundwork for American preeminence in the 20<sup>th</sup> century. The GI Bill did the same in the post-World War II years, while science and technology won major support in the post-Sputnik era. Funding for the National Science Foundation grew from \$34 million in 1958 to \$500 million in 1968, while National Institutes of Health funding grew from \$210 million to \$1.08 billion.<sup>7</sup>

Since World War II, however, the federal policy role in America's universities has consisted primarily of funding basic research.<sup>8</sup> But even this support has diminished to the point that it is below the amount needed to maintain economic competitiveness—even with a recent "bump" from ARRA funding for NIH and clean-energy research. A far more strategic approach to creating and supporting selected research universities at world-class levels has been adopted by most developed nations in Europe and Asia, leaving the United States essentially alone among world economic powers in its failure to develop a national strategy for sustaining the quality of its research-intensive universities.<sup>9</sup>

***The cost of participating in federally-sponsored research is rising.*** At the same time fiscally strapped states are disinvesting in higher education, the cost of participating in federally sponsored research continues to rise in the form of compensation and equipment cost sharing commitments, facility construction, maintenance, and other outlays. Between 1966 and 2006, research universities' share of R&D expenditures rose from 8.6 percent to 19 percent, while the federal share dropped from 73.5 percent to 62.9 percent.<sup>10</sup>

The impact was summarized by the Association of Public Land-grant Universities in an April 2010 report: "Public research universities perform 62 percent of the nation's federally funded research while private institutions do 38 percent. If public universities should fail to be competitive for research grants or have to shrink the size of their student bodies due to budget restrictions, private research universities are unlikely to have available capacity to replace the lost output. Since the preponderance of enrollment growth in four-year university education has occurred among public universities in the past 50 years, there is reason to doubt whether private universities can or would expand enrollment in response to a decline in capacity at public institutions."<sup>11</sup>

## **A New Federal Approach**

As forcefully argued in the *Chronicle of Higher Education* and the *Washington Post*, the United States needs a strategy for sustaining a system of world-class research, global learning, and service institutions.<sup>12</sup> With states playing a declining role in the support of advanced education and research, the federal government needs to provide more direct

support to select institutions with the intent of strengthening those missions critical to the nation at large.

America's global universities have established capacity for both knowledge creation and knowledge dissemination and utilization—especially in the regions impacted by loss of their manufacturing base. **To extend America's land-grant vision to a global "world-grant" mission, the federal government should create a "global university" support program that competitively identifies eligible institutions and consortia of universities and partners that advance world grant ideals.** Selected institutions or consortia would be eligible for up to \$100 million annually, and would be chosen based on specific criteria, including:

- the size and global scope of their research mission and achievements;
- their success in graduating students in disciplines critical to international competitiveness;
- demonstrated commitment to international engagement, outreach, and the co-creation of knowledge, research partnerships, and learning exchanges; and
- a commitment to local (metro community) and broader regional (e.g., Great Lakes industrial communities) engagement and impact through technology and innovation development, entrepreneurial efforts, and partnerships with other knowledge centers (e.g., K-12 schools, community colleges, regional universities, research organizations).

Qualifying consortiums of universities would also be eligible, if they met the above criteria, and can offer:

- an innovative program of national economic significance for global research, technology transfer and related partnerships, research and learning exchanges, and global services that support enhanced U.S. trade and economic activity; and
- a threshold match in the form of state/regional/local public or private support, leveraging wealthy donors, alumni, and matching grants from key foundations in the region (e.g., Kellogg, Mott, Dow, Spencer, MacArthur, Lumina, Kresge, Lilly, and others). The capacity of foundations and other partners remains a formidable resource that federal funds could leverage, particularly for local development initiatives connecting to global innovation.

Regionally, a permanent structure for cooperation and advancement already exists in the form of the Champaign, Ill.-based Committee on Institutional Cooperation (CIC). Comprising the 11 Big Ten universities plus the University of Chicago, its members share a footprint that spans the Great Lakes region.<sup>13</sup> They collectively account for 14.5 percent of all doctoral degrees granted in the United States, 20 percent of all engineering doctoral degrees, and 25 percent of agricultural doctoral degrees. Current CIC members engage in \$6 billion in funded research, or 12 percent of the total federal research funds awarded annually. Responsible stewards of federal funding, CIC members are ranked among the top 100 university recipients of federal R&D, and all

receive more than \$100 million annually in federal R&D funding. Trusted partners of the private sector, they collectively received \$430 million in industry R&D funding in 2006.<sup>14</sup>

As a collective, these institutions already are deeply connected to international markets. The CIC members list more than 1,000 programs in more than 100 countries and include national leaders in study abroad enrollment. Such universities serve as conduits for some of the world's best talent to work in the United States and for promotion of American values, goods and services overseas. They are also entrepreneurial and energetic, even when working in concert. A CIC delegation recently was one of the first to visit India to discuss collaboration with Indian universities, now that India is considering allowing foreign universities to operate there.<sup>15</sup>

Building on the extraordinary depth and breadth of knowledge in these and other “world grant ideal” institutions, and coupling that knowledge resource with strong public policy at the national level, would help make the region a driving force for national competitiveness in the next economy. Seamless connection to knowledge creation and application and the delivery structures such universities offer afford wide options for scalability and demonstration, while ensuring that solutions devised for particular communities are developed in intimate collaboration with those localities.

## **Conclusion**

The Morrill Act created a new type of higher education institution in the 19<sup>th</sup> century to fuel domestic economic development and higher education attainment. Today, the most pressing higher education need is to support existing universities as they advance the public good—to affirm the ideals of the Morrill Act and core values of quality, inclusiveness, and connectivity, but to do it on a global basis. World grant universities are already at work with critical stakeholders with the “can do” spirit of public service to lead the building of a new prosperity in the global economy.

Targeted federal support coupled with the deep knowledge resources and global connections of these powerhouse universities would help create a tipping point for a faster, smarter, and sustainable national economic transformation—while helping advance the renewal of the Great Lakes region.

### **For more information:**

Lou Anna K. Simon at [presmail@pres.msu.edu](mailto:presmail@pres.msu.edu) or Rick Foster at [fosterrick@anr.msu.edu](mailto:fosterrick@anr.msu.edu)

---

<sup>1</sup> Lou Anna K. Simon is president of Michigan State University; Richard M. Foster is W.K. Kellogg Professor in Food, Society, and Sustainability at Michigan State University; John C. Austin is a non-resident senior fellow at the Brookings Institution and Visiting Scholar at the University of Michigan, Institute for Research on Labor Employment and the Economy.

<sup>2</sup> Timothy Bartik and George Erickcek, “Higher Education, the Healthcare Industry and Metropolitan Regional Economic Development,” (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2007).

<sup>3</sup> University of Chicago, Cornell, University of Wisconsin, University of Michigan, University of Illinois, University of Minnesota, Washington University, University of Pittsburgh, Carnegie Mellon, Ohio State,

---

Purdue, University of Rochester, Michigan State, Case Western, and Indiana University. Academic Ranking of World Universities (ARWU), 2009, available at [www.arwu.org/ARWU2009.jsp](http://www.arwu.org/ARWU2009.jsp).

<sup>4</sup> John Austin, Britany Affolter-Caine, and Elaine Dezenski, "The Vital Connection: Reclaiming Great Lakes Economic Leadership in the Bi-National U.S.-Canadian Region" (Washington: Brookings Institution, 2008).

<sup>5</sup> Brookings Institution analysis of 2008 International Institute for Education (IIE) and BEA data. The \$2.3 billion figure was calculated by multiplying the value of all U.S. education exports by the percentage of foreign students enrolled in universities in the region. Such expenditures are defined by the Bureau of Economic Analysis (BEA) as cross-border education service exports.

<sup>6</sup> Association of Public and Land-grant Universities, "Coping strategies of public universities during the economic recession of 2009" (2009); Paul Courant, James Duderstadt, and Edie, Goldenberg, "Needed: National Strategy to Preserve Public Research Universities" *The Chronicle of Higher Education*, January 3, 2010. Fifteen states have directed some \$2.3 billion in ARRA funds to education to offset cuts in state support, but those funds will be all but exhausted in by the end of 2010. See State Higher Education Executive Officers, *State Higher Education Finance FY 2009*.

<sup>7</sup> See Association of American Universities, "U.S. Response to Sputnik" (2007).

<sup>8</sup> The success of campus-based research in winning WWII—with innovations such as radar and electronics—and Vannevar Bush's seminal report, "Science, the Endless Frontier," made it clear to national leaders that campus-based research was too important for national security, public health, and economic prosperity to allow it to be entirely dependent upon the vicissitudes of state appropriations and philanthropy. Hence the federal government assumed the primary responsibility for the support of research, now at a level of \$50 billion/year—an effort that has been estimated to have stimulated roughly half of the nation's economic growth during the latter half of the 20th century while sustaining the nation's security and public health.

<sup>9</sup> This includes major programs in Germany, France, United Kingdom, China, Korea, Japan, Singapore, and India, as well as at the regional level through the Bologna Process and Lisbon Agreement. See Duderstadt, Courant, Goldenberg, "Needed: National Strategy to Preserve Public Research Universities."

<sup>10</sup> National Science Foundation Division of Science Resources Statistics, "Survey of Research and Development Expenditures at Universities and Colleges," quoted in Council on Governmental Relations, "Finances of Research Universities," March 1, 2008.

<sup>11</sup> Association of Public and Land-Grant Universities, "Forging a Foundation for the Future," (2010).

<sup>12</sup> Courant, Duderstadt, and Goldenberg, "Needed: National Strategy to Preserve Public Research Universities" and Robert Birgeneau and Frank Year "Rescuing Our Public Universities" *The Washington Post*, September 27, 2009.

<sup>13</sup> University of Nebraska-Lincoln joins the Big Ten and CIC July 1, 2011.

<sup>14</sup> CIC/AAAS 2008

<sup>15</sup> Hindustan Times, April 4, 2010