

Chicago Fed Letter

Higher education and economic growth

by *Richard H. Mattoon, senior economist*

The future of higher education and its relationship to economic growth were the focus of a one-day conference at the Chicago Fed on November 2, 2005. Cosponsored by the bank, the Committee on Institutional Cooperation, and the Midwestern Higher Education Compact, the event brought together over 100 academic, business, and government leaders.

The perception of higher education as an important public good has eroded. Higher education is viewed by some as a private good with the benefits accruing to the student in the form of higher future wages and quality of life.

In opening remarks, Chicago Fed President and CEO Michael Moskow noted that while the relationship between education, productivity, and economic growth has never been clearer, financial support for higher education has waned while costs have continued to rise.¹ While private universities have been able to raise tuition and draw on endowments to maintain fiscal health, public universities have faced difficult times as states have reduced financial support and often limited their ability to offset cuts with large tuition increases. Moskow noted that state governments are facing competing demands for funding from K–12 education and Medicaid, among other priorities. Also, the perception of higher education as an important public good has eroded. Increasingly, Moskow said, higher education is seen as a private good with the benefits accruing to the student in the form of higher future wages and quality of life.

Moskow suggested several strategies for restoring the higher education social compact. First, universities must be more transparent in their operations. Part of this transparency includes more tightly defining the mission of the university in meeting the multiple goals of education, research, and public outreach. Moskow recommended that institutions make explicit how money is spent and what resources are available to ensure that

tuition is not a barrier to attendance for talented students regardless of income. Finally, Moskow urged higher education to address graduation rates that currently hover around 50%.

Next, Michael McPherson, president of the Spencer Foundation, discussed measures of the affordability of higher education for private individuals and the public. McPherson argued that the real question here is how public resources should be allocated between rich and poor students and among different types of institutions to achieve an optimal distribution for society. Is it more efficient to invest in our most talented students and our best institutions, or can more gains be made for the economy by increasing resources to community colleges and nontraditional student populations? McPherson cited a study² that found that family income and parental education are still major predictors of academic success. Students from the top income quartile receive a combined SAT score of 1200 or better by a ratio of six to one over students from the lowest income quartile. A similar ratio holds for students with at least one parent who graduated from college versus students without a parent who graduated from college.

Offering a perspective from the front lines, B. Joseph White, president of the University of Illinois, characterized the three campuses of the University

of Illinois as the most valuable assets that the state possesses to ensure that globalization benefits rather than harms Illinois residents. However, the university's financial constraints represent a significant obstacle.

Currently, the university provides an education per student that has a price tag of \$25,000; however, it charges the students only \$8,000 to \$10,000 each. The clear message from the state government is that the university must develop other funding sources to supplement state support. These options include increasing revenue from tuition, having faculty find external sources of funding to support their research, and raising more private donations and endowments. Finally, leadership is needed to push cost reductions and increase productivity.

In conclusion, White cautioned that the approach of running a university like a business may not be the answer. Such an approach would raise tuition to levels that would be prohibitive for many students and lead to the closing of financially unattractive operations that are often critical to the mission of the university.

Higher education finance

Professor and former provost Paul Courant of the University of Michigan and Professor Richard Vedder of Ohio University and the American Enterprise Institute offered perspectives on what drives higher education costs. Courant began by asking:

- How is a university like, and not like, a business?
- Why does tuition keep rising faster than the cost of living?
- How happy or unhappy should we be about the answers to the first and second questions, or in other words, how close are universities to producing educated citizens and research efficiently?

Courant argued that a major research university like the University of Michigan is similar to a multiproduct firm with many lines of work, from education provision and basic and applied research to benefits and services, such as health care

and athletics. In addition, the university takes advantage of shared inputs across its business units to provide some cost and quality advantages. While universities tend to operate as high-quality firms, administration and coordination issues also tend to make them have high production costs. Clearly, a university is not a profit-maximizing firm; rather, a university tries to maximize some notion of

source that the administration has some control over. The guiding principle is for tuition to rise as little as possible, but enough to maintain quality.

Vedder offered some other ideas on college costs. He noted that college costs (as measured by the college tuition fee price index of the U.S. Department of Labor) have risen faster than even the

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knowledge-based value. So, how good are universities at doing this? How should they be governed and in whose interest?

The second issue concerns tuition outstripping the Consumer Price Index.

In addition to the impact of declining revenues from other sources, e.g., state government, the following three reasons underlie rising tuition:

- Baumol's disease, the term coined by William Baumol to explain the growth of costs in the theater, suggests that in certain fields (e.g., the theater) technical change does little to increase productivity because basic inputs (e.g., actors and costumes) are still needed. Since wages still grow to keep pace with other industries, costs tend to grow at the overall rate of inflation plus productivity.
- The role of the university as a conservatory implies that higher education institutions cannot do all of their innovation through substitution. They need to retain knowledge of the past.
- Finally, the need to stay on the cutting edge implies increasing technology costs. And competitive pressure to retain the best faculty puts pressure on wages.

Given declining public tax support (the state of Michigan's appropriations for general fund expenditures is now less than one-quarter of the budget compared with one-third three years ago), tuition becomes the major revenue

health care cost index, and have more than doubled in real terms since 1980. Of greater concern is that increases in tuition cost have eclipsed increases in family income.

A key dynamic is surging student demand, which is at least partially driven by the availability of government-sponsored and other financial aid. Because much of the cost of tuition is covered by third parties, the primary consumers remain relatively insensitive to price hikes. Another factor driving costs has been languishing productivity. Most university instruction is delivered in the same manner as it was generations ago. Even if instructional productivity has remained constant, it has fallen relative to other segments of the economy. Finally, staffing levels outside the classroom have grown considerably. Today, there are six nonfaculty professional staff per 100 students versus three in 1976. Indeed, Vedder estimates that, since the mid-1970s, only about \$0.21 of each inflation-adjusted dollar has actually gone toward instruction.

Schools have also become better at price discrimination, meaning they charge different consumers different amounts of tuition based on the perceived intensity of demand. When this is done successfully, it increases the aggregate tuition yield. There are also issues of cross-subsidy between various functions on campus—research, athletics, undergraduate education, and graduate education—that make pricing less transparent.

Vedder questioned the role that public spending on higher education has on economic growth. He cited research that suggests states that spend more on higher education have lower economic growth rates.

In contrast to public higher education, Vedder noted that for-profit universities, such as the University of Phoenix and Strayer University, appear to be thriving. The role of the for-profit university was the focus of remarks by Robert Silberman, chairman and CEO of Strayer Education. Like traditional colleges, Strayer focuses on the value of education that it provides to its students. However, it must also pay attention to its return on capital and market returns to investors. In addition, Strayer's revenue must equal the cost of providing education because it does not have other revenue sources such as endowments or government funding. As a for-profit entity, Strayer has to pay taxes, and it cannot raise tuition indefinitely or it will lose market share.

Strayer's business model focuses on working adults and offers a limited number of academic disciplines and limited campus facilities to hold costs down. It also offers an online university to reach students who cannot attend a campus. This model has proven successful enough to attract investments from public universities that have purchased Strayer stock through their endowments.

Silberman cited three drivers of Strayer's success. First, there is open enrollment. Strayer graduates large numbers of minorities and admits students regardless of high school record, as long as they have graduated. Second, the program promotes academic rigor. Strayer is regionally accredited and offers BAs, MBAs, and technical degrees. Third, high student achievement is required. Between 5% and 10% of Strayer's student population fail each quarter.

Silberman concluded that Strayer's success is based on efficient use of assets and a different student focus. The school doesn't have to offer amenities or pay for expensive real estate. It is also not paying for a research-oriented faculty. He cited a recent survey showing that earnings of Strayer graduates rose

from \$28,000 to \$57,000 in two years after graduation.

Adapting to the knowledge economy

James Duderstadt, president emeritus of the University of Michigan, focused on the role of higher education in driving economic transformation. In the Midwest, a new industrial production paradigm has emerged that places a high value on knowledge institutions, such as research universities, corporate research and development laboratories, and national research agencies, for creating advanced education, research innovation, and entrepreneurship.

Duderstadt argued that the region needs to develop a strategic plan, such as the Michigan Roadmap,³ to harness these economic forces. Michigan's economy is facing significant challenges. Its largest city, Detroit, is among the poorest in the nation, and one of its major industries, domestic autos, is suffering staggering losses. One-quarter of the state's adult population lacks a high school diploma and only one-third of its high school graduates is college ready. Yet, the state has a system of higher education that is regarded as among the finest in the nation, although it too is beginning to suffer from a withdrawal of state support.

Duderstadt suggested that the concentration of strong flagship research universities in the Midwest represents a unique asset, which policymakers and business leaders should leverage. The Big Ten universities along with the University of Chicago conduct \$6 billion per year in research and development; enroll 300,000 undergraduate and 76,000 graduate students; and award 20% of the nation's doctorates in engineering, chemistry, mathematics, and computer science. For the region's economy to succeed, Duderstadt argued, these institutions must be at the heart of the strategy.

Such a strategy requires a coalition among leaders from all sectors, including business and industry, state and local government, higher education, foundations, and the media. This coalition could promote and ultimately benefit from the transformation of the Midwest

from a manufacturing center to a knowledge center.

Challenges identified by higher education leaders

Lou Anna Simon, president, Michigan State University; Paul Courant, professor and former provost, University of Michigan; and Richard Saller, provost, University of Chicago, shared their views on the challenges facing their own and many other institutions. Simon noted that the universities' core mission of providing access to cutting edge knowledge and democratizing information is unchanged. But higher education must restore public trust that it provides access in an inclusive fashion, and it must make the benefits of basic, applied, and commercial research readily apparent.

Courant pointed out that universities have a moral hazard problem when it comes to promoting their value to society, since it is obviously to their benefit to show they deserve significant public resources. It might be easier, therefore, for the business community to make the case that developing basic and applied research and educating the work force are important issues of public policy.

Saller offered the perspective of a private research university. Saller suggested

Michael H. Moskow, *President*; Charles L. Evans, *Senior Vice President and Director of Research*; Douglas Evanoff, *Vice President, financial studies*; David Marshall, *Vice President, macroeconomic policy research*; Richard Porter, *Vice President, payment studies*; Daniel Sullivan, *Vice President, microeconomic policy research*; William Testa, *Vice President, regional programs and Economics Editor*; Helen O'D. Koshy, Kathryn Moran, and Han Y. Choi, *Editors*; Rita Molloy and Julia Baker, *Production Editors*.

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that higher education benefits from intense competition. While the public is concerned with accountability, competition at both the national and international levels leads universities to make the investments to stay on top. In global rankings, American universities continue to dominate, but a disturbing trend is the increasing stratification between private and public universities. Generally, private universities have had greater flexibility in raising tuition, larger endowments, and more stable funding.

The three panelists agreed that communication was at the center of the higher education problem. Simon suggested that universities often fail to speak the language of the public, and this tends to create distrust. Saller noted that more work needs to be done on the tangible outcomes from higher education spending, and cited a study by University of Chicago economists Robert Topel and Kevin Murphy that demonstrated a huge return to society from university research funded by National Institutes of Health grants. Research on the returns from other aspects of higher education spending would be useful.

North Dakota—A statewide effort to improve higher education

The next panel discussed the North Dakota Roundtable on Higher Education, set up in 1998 to reform the state's higher education system. The panelists were

Larry Isaak, former chancellor, North Dakota University System, and president, Midwestern Higher Education Compact; State Senator Ray Holmberg, chair, Higher Education Roundtable, and chair, North Dakota Senate Appropriations Committee; Eddie Dunn, vice chancellor, North Dakota University System; Joseph Chapman, president, North Dakota State University; and Roger Rierson, president, Flint Communications, and Higher Education Roundtable member.

In 1998, North Dakota had a struggling economy and a higher education system that was not seen as important to the state's economic future. There was little cooperation among universities, government, and the private sector, and the popular perception was that the university system was a financial burden.

The roundtable developed a consensus on how the North Dakota University System could best focus its assets and talents. It has focused universities on placing students first, expanding program offerings while bolstering quality, and leveraging external support. Enrollment at North Dakota State University grew from 9,700 in 1999 to over 12,000 in 2005. Doctoral programs expanded from 15 to 40, and doctoral students increased from 150 to 500. Research expenditures soared from \$44 million in 1999 to \$102 million in 2005. Importantly, the new entrepreneurial and results-oriented culture is paying real dividends

to the state. The most recent study of the economic impact of the university on the state's economy has shown its contribution rising from \$14 million to \$105 million in just five years. Each additional dollar of state funds is now attracting \$9.60 of external support.

Conclusion

The conference made it clear that traditional models of higher education finance and service delivery are under stress. Declining financial support from state sources appears to be a structural issue, and changing student demographics require new service delivery models. The question for policymakers is this: If higher education is essential to economic growth, how do we best support this critical sector?

¹ The agenda and presentations, as well as an expanded, online-only edition of *Chicago Fed Letter* summarizing the conference, are available at www.chicagofed.org.

² William G. Bowen, Martin A. Kurzweil, and Eugene M. Tobin, 2005, *Equity and Excellence in American Higher Education*, Charlottesville, VA: University Press of Virginia.

³ James J. Duderstadt (project director), 2005, *A Roadmap to Michigan's Future: Meeting the Challenge of a Global Knowledge-Driven Economy*, University of Michigan, Millennium Project, report, available at <http://milproj.ummu.umich.edu/publications/roadmap/index.html>.