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Tinkering the academic mission

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Chicago — One of the most fashionable ideas in global economics is that a nation's universities should function as engines of discovery, patents and whole new industries.

For policy-makers, the idea also might be one of the most romanticized and misunderstood.

Richard Lester, an engineering professor who specializes in industrial innovation at the Massachusetts Institute of Technology, argues that most people misunderstand the economic influence of universities.

Spectacular success stories from schools such as Stanford University — which helped incubate Cisco, Google and Yahoo — have led to the exaggerated expectation that campus research labs can spawn new industries, he said Monday at a conference at the Federal Reserve Bank of Chicago.

Lester argues that the economic importance of universities has never been greater and is bound to increase with the free cross-border flow of ideas and technology. Yet he also is eager to explode a few popular "myths."

"We need a more holistic view of the university," one that's better grounded in the needs of a regional economy, Lester said.

He found that fewer than 2% to 3% of start-up companies originate around university-driven ideas and technology. Fewer than 3% of U.S. patents originate at the nation's universities, he added. Licensing revenue is far less than many would think as well, he said.

International Business Machines Corp. alone generates roughly as many patents in a single year as the 300 largest registered U.S. research institutions, Lester said.

Even such powerhouse tech schools as MIT would not even land in the top 100 rankings of institutions that generate patents in the United States. That roster remains dominated by private-sector corporations, said Lester, also director of MIT's Industrial Performance Center, which conducted the research he cited.

Sean Safford, a business professor at the University of Chicago, cautioned against a "one-size-fits-all" approach to university-driven economics. As the "ecosystems" of regional economies evolve, many look to their local universities to help those regions compete.

Six roles For universities, that can include up to six simultaneous and daunting roles, Safford said. Those roles include: acting as centers of innovation and research; educating all levels of the labor force; spinning out new companies; opening laboratory doors for access to expensive research equipment; investing in business incubators and often the real estate that goes with them; and even "reconstructing the innovation system" within local business cultures by aggregating financial backers and entrepreneurs.

"That is a lot to ask any university to do," Safford said.

Yet the urge to see universities as economic assets is a global phenomenon. Michael Moskow, president of the Chicago Federal Reserve Bank, said British universities talk about "a third mission" of commercial application along with the traditional objectives of teaching and research.

Lawmakers in a handful of states, including Wisconsin, already see state-run universities as a financial burden. Those legislators could grow even more disappointed if policy-makers heap expectations on universities that they cannot deliver. "That's a real danger in this environment," Lester said.

That the role of universities is changing is clear enough. In recent years, many major U.S. universities devote some curricula or even separate departments to teach entrepreneurship.

Shifting roles for higher education is a new phenomenon. What has changed, Lester said, is that China and India are attracting ideas, businesses and capital, which themselves are increasingly mobile.

But a university is by its nature stationary, according to the speakers at the conference. That alone is one of the greatest assets for any regional economy. A dynamic university acts as a "brain draw" that can offset the "brain drain" that business groups complain afflicts much of Wisconsin and other Midwestern states.

Other economic roles for American universities are less sexy and recognized but no less important to their respective regions, the Fed speakers said.

Helping local economy Instead of giving birth to new industries, well-managed research universities can help struggling regions diversify into related industries that fit their indigenous ecosystem.

They can tailor curricula to the local economy. They can help define an "industrial identity" for a region. Without even needing to invest entirely new technologies, faculty can help upgrade local industries by scanning the globe for existing technologies that they can import and apply.

One of the most important aspects of a research school is to provide a public forum where ideas can be discussed in an open-ended way. That role of any university is impossible to quantify but indispensable, Lester said.