BY ALLEN SANDERSON, JOHN SIEGFRIED AND PETER MCHENRY

Local boosters – chambers of commerce, regional development agencies and the like – regularly commission studies to estimate the impact of new business as well as signal events like sports championships and major trade shows that attract well-heeled visitors. Typically, the local news media uncritically accept their enthusiastic projections of jobs created, tax bases expanded and so on.

Many colleges and universities engage in similar tabulation and reporting exercises, for understandable reasons. Higher education needs all the support it can get in raising money, pressing for local zoning variances and pleading for new public infrastructure – not to mention help in fending off criticism for reducing taxable property, displacing street parking and disrupting residential neighborhoods with party-crazed students.

But the fact that such research has the imprimatur of institutions of learning doesn't necessarily imply that it is accurate. We recently examined 138 such studies completed since 1992. In a disturbingly large fraction of them, we found public relations hyperbole masquerading as economic analysis.

Almost all of them report some measure of college-induced expenditures in the local area. They also claim a "multiplier effect" because part of the initial ("first round") expenditure is respent locally (in subsequent "rounds"). Some studies take credit for attracting new residents who came to the area for college and stayed. Some claim responsibility for the increase in lifetime incomes resulting from their students' education. Impacts in the form of innovation, improvements in the quality of life and public service are often mentioned. Colleges also tout their contributions to local culture – theater, music performances and art exhibitions – but rarely quantify them. Here, we offer a critical guide to the claim game.

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THE IMPORTANCE OF THE COUNTERFACTUAL

Studies that are devised to show the local economic impact of a college or university usually produce an estimate of how much better off residents of the pertinent area are than they would be in its absence. The hypothetical world lacking the institution of higher learning is called the "counterfactual." But while actual outcomes in terms of employment, tax revenues and such are relatively straightforward, broader economic impact studies tend to stumble when analyzing the counterfactual world in which the college had never arrived or expanded.

For one thing, the counterfactual rarely ac-

Geisel Library at the University of California, San Diego

counts for the economic activity displaced by the presence of the college. The extent of activity so affected depends, of course, on the willingness and ability of alternative companies or colleges to fill the hypothetical gap. For example, a university that attracts students who, in its absence, would have enrolled at others in the same region does not create much new economic activity. In contrast, an isolated rural college might reasonably be credited with virtually all of the impact stimulated by its presence.

But the focus of these studies cannot be on geography alone. The interest in impact is surely a concern about people and their standard of living – in which case, the relevant population must be identified. If a college were to disappear, who would stay and who would leave? If a new university were opened – say, a new branch of the California state system – whose change in welfare should be included? People living in the locality before anyone dreamed of building the university? The new permanent residents attracted by the university? Students who live there just during the academic year? A fundamental problem with most college impact studies is that residents of the area who benefit from the institution's presence would be somewhere else (and perhaps prospering) if it weren't there.

A dollar spent by a college may eventually create two dollars of local economic activity. But a dollar spent on barbecue or bowling does the same. The difference between colleges and other establishments is not that college outlays are subject to a multiplier effect as the income generated is spent and respent, while other spending is not. The question, rather, is primarily the extent to which higher education attracts new income-producing

activity to an area – that is, how much economic activity would increase compared with the no-college scenario.

WHAT DOES "LOCAL" MEAN?

Only new spending has an effect on economic activity. Local residents may purchase books, meals or tickets to events on campus. Campus sales of, say, books or concert tickets that substitute for alternative local purchases by residents contribute to the gross impact of a college, but they generate an offsetting negative impact elsewhere in the community. The larger "local" is defined, the more likely that alternative purchases would have occurred within it – implying that the net measured impact of the college shrinks as the area under consideration expands.

In contrast, the appropriate multiplier that should be applied to new spending grows as the targeted geographic boundary expands. In a narrowly drawn circle, the impact of a university's spending in the area quickly dissipates as residents and businesses make purchases from other locales. But for a larger area, expenditures on vendors and employees who live in the state but not in the immediate vicinity become "local," and thus further stimulate that larger area as the resulting income is respent.

Thus, it is tempting to define the area in question narrowly so as to maximize the calculation of new spending, and – inconsistently – to use a multiplier that has been derived by following the multiplier effect spread through a larger area. Doing so, however, plainly biases the results.

FIRST-ROUND EXPENDITURES

Applying a regional multiplier to *all* expenditures is *never* valid. It is inconceivable that every dollar of any college's revenues (and corresponding expenditures) is derived from spending that is new to the area. Some revenue, if only from a neighborhood sports fan who pays to attend a college game rather than spending the equivalent amount at the local cineplex, does not represent money newly attracted to the locality.

If the appropriate criterion for evaluating the economic impact is the effect on people who would live in the area anyway, then none of the payments to in-migrants to the area (faculty members and specialized staff members, such as librarians and computer specialists, whose only reasonable employer is a college) should be counted in the first round of expenditures, because those in-migrants are not part of the counterfactual population. By contrast, subsequent rounds of expenditures from in-migrant employees that do affect counterfactual residents of the area – think plumbers, physicians and auto mechanics – should be counted.

Although gross payroll is a convenient measure (and sometimes the only one available), it overstates first-round expenditures that have a local impact, because employees inevitably spend part of their income elsewhere. For example, an extra dollar of federal income tax collected from employees surely does not imply that the federal government will spend an extra dollar in the locality. Thus, it is more appropriate to use income after federal and state taxes to measure first-round expenditures that affect the local economy. By the same token, money spent by Utah residents on vacations at Disney World or purchases by Californians from L.L. Bean in Maine shouldn't count either.

MULTIPLIERS

Two approaches are generally used to convert an injection of expenditures into a college's total economic impact. Both capture the idea

In 2005, the city of Berkeley sued the University of California (Berkeley), to block construction of new projects.

JUSTIN SULLIVAN/GETTY IMAGES

that expenditures new to an area create income for other firms and individuals, and that the recipients, in turn, spend some of the added income locally, thereby "multiplying" the initial infusion. The first approach is to use a comprehensive computer model of a local economy to simulate subsequent rounds of local spending. Then, a parallel simulation is run excluding the college from the model. The difference between the two is the estimated economic impact.

A second approach applies a simple numeric multiplier to new expenditures attracted by the institution, which takes account of the rate at which spending leaks from the locality. Regional multipliers usually have a magnitude substantially less than two. Indeed, the Yale economist Ray Fair's widely cited model of the United States economy suggests that the appropriate multiplier for the entire country is less than 1.4 because spending rapidly leaks away in taxes, savings and purchases from foreign countries. But, of course, few college economic impact studies treat the whole country as their "local area." Hence, the use of large multipliers in such studies is automatically suspect.

Beyond these substantive issues, researchers too often use language designed to exaggerate the multiplier. The statement that "the University of Maryland generates $5.93 of economic activity for every dollar appropriated by the General Assembly, for a total statewide effect of nearly $1.8 billion" may be accurate, but it is misleading. It implies that each dollar spent on the university returns $5.93 to the state, for an annual rate of return on state investment near 500 percent. This

sounds too good to be true, and of course, it is. That's because it attributes all of the return from the University of Maryland's myriad activities – financed from various sources – to the modest portion of the university's budget (26 percent, according to the university's Web site) contributed by the state. If investments in universities realized returns exceeding 100 percent annually, there would no doubt be thousands more under construction.

SPILLOVERS FROM ENHANCING HUMAN CAPITAL

Some studies argue that extra future earnings of students who stay in an area after graduation should count as part of local impact. Little of this income, however, accrues to those individuals who would have populated the area "but for" the existence of the college. Earnings of in-migrant students who join the local labor force after graduation should be excluded, because they are not part of the counterfactual local population.

Moreover, only that part of any graduate's earnings attributable to the extra education should be counted. And measuring this increment is tricky: Students admitted to college on the basis of their aptitude are likely to earn more than the average high school graduate, even if they never attend college.

In addition to the direct impact on human capital, a college may contribute in less tangible ways to the quality of life of the local population. Possible social benefits of more education include reduced crime, improved public health, greater civic responsibility – as well as the enhancement of the productivity and earnings that spill over to local residents who themselves did not attend college.

For a college to make the case for counting these indirect benefits, however, it should demonstrate its responsibility for the human capital being there. Because college graduates are geographically mobile, it is difficult to believe many colleges raise education levels in their local area much. Moreover, the argument that a college enhances the education level of the local work force is cogent only if the institution's presence attracts new employers to the local area. In some cases, a widely admired university science or engineering faculty or well-trained graduate students may indeed attract an employer. But the MITs, Caltechs and Princetons of the world are the exception; businesses have little

The Stata Center for Computer, Information and Intelligence Sciences at MIT

incentive to cluster around second-tier institutions, since they hire scientists and engineers in what now amounts to a global labor market.

All that said, it's worth remembering that while boosters have incentives to focus on the local impact of higher education, the social value of, say, educating national leaders or generating new technology used around the world can be enormous. And it is these broader social benefits – not the jobs and income brought to West Podunk at the expense of East Podunk – that largely explain why investments in libraries and laboratories probably have a higher return than similar expenditures on new shopping malls.

THE IMPOSSIBLE DREAM?

Higher education may face the same sorts of competitive pressures that drive for-profit enterprises to fudge the books in calculating the economic impact of new investment. But there is a price to pay in exposing the ivory tower to the push and shove of the marketplace. We need colleges and universities to set standards for research – not follow them in a race to the bottom. M