Much research on the economics of education was accomplished in the 1960s and early 1970s, stimulated by the path-breaking work of T. W. Schultz (1961) and Gary Becker (1964). Higher education played an integral role in that research (Schultz 1972). By the late 1970s, however, interest in the economics of education generally and the economics of higher education specifically waned; during the 1980s, contributions to the literature were sparse.
In 1988, the National Bureau of Economic Research (NBER) initiated an effort to revitalize research on the economics of higher education. The NBER’s effort and investments in research on the economics of higher education by the Andrew W. Mellon Foundation in the 1990s have made a difference, although research on the economics of higher education has not gained the prominence accorded research on other sectors of the economy of comparable significance, e.g., health care, welfare, and urban economics.

The lack of interest in research on the economics of higher education is surprising. Higher education itself accounts for approximately 5 percent of the U.S. gross domestic product. More importantly, it is the source of much of our human capital and thus affects the future growth rate of the economy.

In economics departments, research on education at any level is a low-prestige endeavor; research on the economics of higher education is no exception. Formal theoretical analysis is the pinnacle of status in economics, but there has been relatively little theoretical modeling of colleges and universities, perhaps because higher education is so complex. It is difficult to identify a straightforward goal for colleges and universities, let alone the locus of decision making. The myriad financial contributors to colleges and universities—students, parents, alumni, foundations, government agencies, local governments, neighbors—combined with the amorphous authority of faculty require administrators to devote so much attention to balancing competing interests that frequently nothing is maximized. Survival may be the best that administrators can accomplish.

Conventional maximization techniques require an objective function subject to a production function constraint. Educational production functions for learning, however, are poorly understood and vary across individuals. It is not particularly convincing to talk about a single production function when many exist and we don’t understand any very well. In short, because the operation of colleges and universities does not fit well into the framework of existing economic analysis, most theoretical analysis has been limited to important but narrow questions about higher education.

The diversity of higher education, its organization primarily into not-for-profit entities, and the fact that much of its value is realized as a flow of services over a long period of time also hinder research in the field. Differentiation challenges cross-sectional analysis because the “output” of each institution is essentially unique. Not only are institutions differentiated in terms of their location and the relative emphasis they place on various services, but they are also differentiated in terms of control, wealth, sources of financial support, reputation, and, of course, the unique faculty at each institution. Higher education, like professional sports, is characterized by “customer” concern with how the product is produced, which is why James Garfield, at a Williams College graduation before he became president of the United States, described an ideal college education as Mark Hopkins (then president of Williams) at one end of a log and a student at the other end.

Colleges and universities may be organized as not-for-profits because they provide largely “trust goods” (Weisbrod 1988). People generally purchase a college education only once in a lifetime and thus cannot directly punish a low-quality provider by withholding repeat purchases. Because
students fear the consequences if decision makers in colleges and universities have a residual claim on revenues left after the bills have been paid, most institutions are organized so that no one benefits from a residual. Unfortunately, the sophistication of economic models of the not-for-profit sector lags significantly behind that of models of the for-profit sector and even behind that of models of government behavior, thus hampering economic research on the subject.

Because colleges and universities create human capital that provides a flow of services over time, measuring the output of higher education is difficult. If one waits long enough to observe the deferred services, conclusions one might draw from the analysis are out of date. If one bases an analysis only on contributions that are apparent immediately, there is a risk of overlooking the most significant outputs. Moreover, the longitudinal data that are necessary to track a flow of services over time are difficult and expensive to accumulate because it is difficult to keep track of people over a long period of time. When coupled with the low respect among economists for data collection, the deferred payoff to higher education creates an almost insurmountable barrier for an individual investigator to gather primary data.

In addition, the success of higher education depends on inputs contributed by its “customers” (Rothschild and White 1995), thereby confounding efforts to identify the marginal product of inputs into the educational production process. Finally, a college education is an experience good that can be evaluated only after it is purchased and whose value varies among individuals. Both of these attributes challenge traditional economic models.

The Development of Infrastructure for Research on the Economics of Higher Education

Either more inputs, improved “research technology,” or a combination of both must be applied to advance our understanding of the economics of higher education. The research infrastructure consists of the existing research literature and methods, human resources, time, and information (data). Incentives are needed to attract these resources to the study of higher education. Finally, it may be possible to enhance the productivity of individual researchers by improving the flow of information about efforts and results among the research community.

It is probably unwise to attempt to develop a full-status field in economics based on higher education. Like health economics, the economics of higher education has to date made few theoretical or empirical contributions that are unique to the field. Rather, the art of scholarship on the economics of higher education is to understand how to bring theoretical models and empirical methods from the mainstream economics fields to bear on the peculiar problems posed by the institutional framework of higher education. Indeed, it may be more productive to try to interest economists whose main focus is on labor economics, industrial organization, or public finance to study questions about higher education than to try to convert them into full-time higher education specialists. Economists who work on questions related to yet beyond the boundaries of higher education may offer a fresh perspective and bring new theoretical and empirical approaches to the field.

Existing Literature and Research Methods

The stock of existing literature on the economics of higher education is cataloged and accessible. There are possibilities for improving its value by increasing the transfer of knowledge among different groups of researchers who work on questions that have implications for higher education policy—primarily those in departments of economics and those in departments of educational leadership and policy located in schools of education. There is surprisingly little contact between the literatures used by these two groups of scholars or among the individuals themselves. A mixing of scholars from these two “schools of thought” and exposure to each
other’s literature could provide benefits to both groups.

Those who are trained in economics likely will have a comparative advantage in modeling and empirical methods and a corresponding disadvantage in institutional knowledge and the identification of relevant questions. Because the higher education sector is so complex, learning about it is a daunting task. This can be a substantial impediment to the interest of young economists and may explain why many senior scholars in the field cut their teeth in more traditional fields of economics, such as labor economics, public finance, or industrial organization. Younger economists, many of whom are anxious about their prospects for recognition and promotion, may resent the time required to develop an adequate understanding of institutions because they receive little reward for that understanding within the mainstream scholarly economics profession.

Thus, it is unlikely that young economists will take the time to learn a lot about higher education. Nor is it clear that they would succeed if they tried. The comparative advantage of young economists lies in their theoretical and empirical skills. A lot of the institutional knowledge about colleges and universities is learned at low cost by osmosis—by being a faculty member in a college or university. That approach, of course, also implies that a lot of the institutional knowledge about colleges and universities is distorted by the unique experiences of the individuals accumulating the knowledge. There are clearly risks as well as advantages to living inside one’s research subject.

One approach to helping young economists to steadily gain the institutional knowledge necessary for them to pursue specific research projects is to mix younger with more experienced economists more frequently. Conferences about the economics of higher education often are attended by the same established scholars who can and do learn from each other but do not pass much of their institutional knowledge to younger scholars. The NBER higher education group meetings mix younger and established scholars, but they focus only on empirical research, are limited to economists, and accommodate only a limited number of participants.

Scholars who approach higher education policy questions from a base in educational leadership and policy usually have a comparative advantage in institutional knowledge but often are at a disadvantage in theoretical and empirical techniques. One approach to reducing this gap would be to create opportunities for these people to learn more about such techniques from economists.

There are various models to increase the interaction among junior and senior economists and among economists and education leadership and policy scholars. Possibilities include conferences that mix economists and education scholars. One approach would be to hold a week-long retreat, bringing together 15 to 20 scholars interested in higher education policy, supplemented with five or six policymakers from, for example, higher education organizations and the U.S. Department of Education, as well as university deans, provosts, or presidents. Each academic participant would present a research paper. Papers would be available in advance, and everyone would be expected to have read them. There would be a short presentation, but the majority of the time would be devoted to discussion.

Additionally, a short course or two on specific research methods might fit into the schedule, based on the interests of the participants. The retreat also would be a time for participants to share working or concept papers among colleagues for comment and advice.

**Dissertation Fellowship Program**

Economists are acutely aware of incentives and may be more sensitive to relative rewards in making personal decisions than are scholars in other fields. Graduate training in economics requires at least two full years of general training in microeconomics, macroeconomics, and empirical methods. Students usually do not commit to their primary applied field or select dissertation topics before the beginning of their third year of Ph.D. study. There is little to be
gained in attempting to support graduate students at the early stages of their training. About all that can be done to attract their interest to questions concerning higher education is to get research on higher education into the journals these students read, to encourage established scholars to make seminar presentations on higher education topics at the leading departments of economics, and to develop a general “presence” of and respect for the research area within the overall economics discipline.

**Dissertation fellowships** are an obvious incentive to attract intelligent young scholars to work on the economics of higher education.

Dissertation fellowships are an obvious incentive to attract intelligent young scholars to work on the economics of higher education. To be effective, a fellowship program must minimize the risk students confront when contemplating a thesis proposal on a higher education topic. The program should also be both flexible and stable. The focus of the program would be on understanding the economics of higher education and the welfare implications of various higher education public policies. An essential component would be an annual meeting of fellows, thesis advisors, the program steering committee, and a few other scholars invited on the basis of their expertise and interest in the dissertation topics. To the extent possible, different scholars would be invited to successive meetings in order to foster relationships among the younger and older scholars and between those from economics and policy backgrounds.

**Support for Postdoctoral Research of Young Scholars**

A research grant program analogous to the Sloan young scholars awards could add prestige and interest to the study of the economics of higher education. Such a program would be based on a fixed stipend for research expenses to be spent over an extended period (e.g., three years). A couple of grants might be awarded annually for several years to boost research on the economics of higher education by recent Ph.D.s.

The awards should be based on the promise of outstanding scholarship and a proven track record. If eligibility were limited to those with two to six years of experience after receiving their Ph.D., applicants still would be young scholars but would have had an opportunity to prove their capabilities and interest in the economics of higher education. Two $40,000 grants and $5,000 for a selection committee meeting implies an annual cost of $85,000.

**Incentives**

Young economists who publish their research results only in the *Chronicle of Higher Education* or *Change* cannot expect to earn either the respect of their economics department colleagues or tenure. They must perceive a prospect for publication in prestigious economics journals as an outcome of their efforts.

In the early 1970s, the *Journal of Political Economy (JPE)* published an influential special issue on the economics of education. It included articles by young economists who are now established scholars. If a journal of the prestige of the *JPE* could be persuaded to publish a special issue on the economics of higher education with considerable advance notice, younger scholars would be more inclined to work on such topics. Promise of a highly respected outlet for essays would complement both the dissertation fellowship program and the young scholars’...
awards by providing a vehicle for participants to achieve professional recognition.

Special issues of journals must be negotiated with editors. A subvention sufficient to cover incremental costs of copyediting, composition, printing, and distribution might induce cooperation. Authors for the volume might be drawn from both fellowship recipients and economists who received young scholars awards. Assuming an average circulation of 6,000, $30,000 should suffice to cover incremental costs. If this were done biennially, the average annual cost would be $15,000.

**Visibility**

One obvious way to increase interest in the study of the economics of higher education is a survey article in the *Journal of Economic Literature* (JEL). Such an article would not have to cost anything, as the prestige of a JEL survey article is usually sufficient reward to motivate most economists who are invited to write such articles. On the other hand, the possibility of a modest stipend available to the author for research assistance would improve the prospect that the JEL editor could attract his first-choice survey writer. A stipend of $10,000 would be sufficient for this purpose.

**Data**

The study of the economics of higher education is a low-prestige activity in the economics profession. It does not compare to the depths of prestige associated with primary data collection, and that seems unlikely to change in the near future. Priority in the economics profession focuses more on theoretical modeling and the development of new econometric techniques that, unfortunately, often are applied to meaningless or inadequate data.

The resolution of many issues in the economics of higher education depends on empirical magnitudes. What is the internal rate of return to an additional year of college? Do students respond differently to corresponding changes in tuition and need-based aid? How high can universities raise tuition before revenues begin to decline? How do unit costs change as institutions grow? To what extent is the pool of prospective new faculty sensitive to real salary levels? Theoretical and econometric techniques alone cannot improve our understanding of such questions.

The College and Beyond (C&B) data set developed by the Mellon Foundation has provided valuable information about 34 private and public institutions and their applicants and graduates. Data in C&B have an advantage over data collected by the National Center for Education Statistics in that C&B is driven by research questions. The C&B data set is limited, however, by its focus on selective private institutions. Although 80 percent of American undergraduates attend public institutions, only four state universities are included in the C&B sample. Research based on the C&B data thus reflects only a small portion of American higher education.

To complement C&B, a similar data set for public comprehensive (regional state) universities and open-enrollment private colleges and universities is needed. Public comprehensive universities and open-enrollment private colleges are so different from the selective private colleges and universities and the flagship state universities included in C&B that inferences drawn from research

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**What is the internal rate of return to an additional year of college?**

Do students respond differently to corresponding changes in tuition and need-based aid?
based on C&B data may be irrelevant for the vast majority of American higher education.

It is difficult to estimate the cost of constructing a data set comparable to C&B for public and less selective private institutions. The quality of recordkeeping is likely to depend on an institution’s wealth, and institutional wealth and selectivity are correlated. Moreover, sample selection bias may constitute a daunting challenge to the collection of useful data from institutions whose incentives and resources to maintain and resurrect relevant information vary substantially. The C&B data set contains about 45,000 observations for the classes entering 34 mostly selective private colleges and universities in 1951, 1976, and 1989. Respondents were located and interviewed in 1995 and 1996, thus allowing long-term outcomes to be related to their college experience. C&B took over two years to assemble. The final cost was about $65 per observation, or $3 million.

Support from the presidents of the sampled institutions was essential to assembling the C&B data and would no doubt be critical to replicate C&B for public and less selective private institutions. Achieving an adequate response rate would probably be more costly for public institutions that rely less on donations from alumni and have lower incentives to maintain contact with alumni. In order to invest relatively more in obtaining a high response rate, the sample might be trimmed in light of the experience of researchers using the C&B data. It might be sufficient to survey just two cohorts at fewer institutions, although cross-institutional analysis would generally require 25–30 observations. It might also be possible to assemble a public-institution sample by starting with the four state universities in the C&B data set. Using the same years and questions would allow comparisons with some of the C&B data.

Massive data collection is not the only way to improve the information base for the study of higher education. An effort to persuade the Department of Education to devote more resources to checking Integrated Postsecondary Education Data System (IPEDS) data for internal consistency and abnormal changes from year to year could be more effective than relying on investigators’ later ad hoc efforts to clean IPEDS data. A committee on “higher education data needs” might take responsibility for trying to improve the usefulness of various important data sets to higher education researchers. The committee could organize a series of discussions among researchers and data collectors with a goal of producing more useful links among various sources of information.

Longitudinal panels such as the National Longitudinal Survey and High School and Beyond (HSB) could be improved. In HSB, for example, the earnings question in the 1992 follow up (the last), just when the 1982 graduates would begin to have a permanent wage history, is too noisy to be of much use. Furthermore, HSB ended in 1992, thus eliminating the possibility of obtaining wage data over the careers of the participants. The Current Population Survey could be supplemented with questions on where people went to college, how long they were there, when they started, and where their parents went to school. Efforts in this direction could even be made retrospectively, such as coding college characteristics to the Panel Survey of Income Dynamics. Similarly, the National Survey of College Graduates and the National Survey of Recent College Graduates would both be more valuable if respondents could be linked to educational institutions. More generally, because higher education is so heterogeneous, longitudinal databases need to be large to distinguish variations in the impact of different educational experiences.

**Experiments**

Finally, the exploitation of randomized controlled experiments deserves serious consideration. A good deal of recent insight into the economics of education has stemmed from labor economists identifying situations that have constituted natural experiments. Although they are usually quite expensive, randomized experiments have the ad-
vantage over natural experiments of addressing questions identified by researchers rather than relying on the luck of what varied in a natural situation.

While the cost of implementing randomized controlled experiments in higher education may be prohibitive, an effort at early identification of social experiments or policy changes that can be treated as a randomized experiment if a baseline is established (e.g., the Georgia HOPE scholarship program) could make a significant contribution to our understanding of the economics of higher education. The idea here is not to conduct the experiments themselves but to provide the resources to evaluate them. This would require working closely with and monitoring plans of federal agencies, states, and colleges and universities that may be planning policy changes that could be assessed as randomized controlled experiments.

Conclusion

It is probably unwise to attempt to develop a full-status field in economics based on higher education. Like health economics, the economics of higher education has to date made few theoretical or empirical contributions that are unique to the field. Yet much is to be gained by bringing models and methods from the mainstream economics fields to bear on the peculiar problems posed by the institutional framework of higher education. Only by encouraging more research in this realm can we begin to address many of the important questions confronting higher education today.

Note: I have received advice on the basic questions addressed in this paper and comments on an earlier draft from well over two dozen economists and educational policy scholars. From fear of excluding someone, I do not list individuals, but wish to express my appreciation for everyone’s considerable assistance.

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