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The Economic Benefits of Pre-Baccalaureate Education: Results From State and Local Studies

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Results from national studies help to resolve some of the debates over the roles of community colleges and other postsecondary institutions. They also provide rough guidance for state policy-makers trying to decide what kinds of programs to support. These issues are discussed in CCRC Brief No. 2 (June 1999). However, for students contemplating their options, national information is much less valuable than data about specific local institutions. Administrators need evidence about specific programs in their own colleges, not average effects from around the country. For state policy-makers, national results have to be re-interpreted to reflect the different conditions in the states, since community college systems and labor markets vary so much from state to state.

Some states have improved the collection of data on their students. The major innovation has been to shift from conventional questionnaire-based follow-ups of students, a process typically resulting in very low response rates (10 to 25 percent) to data based on Unemployment Insurance (UI) data. Apparently, twenty states have established such procedures (Seppanen, 1995), which require colleges (or states) to link identification numbers of students in various educational institutions with the identification numbers in UI wage records.

The biases of UI data—particularly the groups not covered—are known, while the biases from non-response to questionnaires are generally unknown. Information is available on earnings over long periods of time, allowing longitudinal analyses rather than the one-time follow-up typical with previous methods. However, while the collection of information through UI data is conceptually simple, in practice it requires a great deal of cooperation among state agencies and local programs. Furthermore, the process can become highly political, since institutions and programs asked for data know that a follow-up system could be used to reduce their funding or eliminate their programs. In some cases, political considerations have severely limited the analysis

that can be carried out. In Texas, for example, traditions of local control mean that individual colleges control the data and carry out virtually all analyses.

UI data suffer from a number of inherent problems. The most obvious is that the coverage of the UI system is incomplete—for example, usually individuals who have moved out of state cannot be located. Also, because some individuals cannot be matched in UI data, such as those who are self-employed, in jobs not covered by Unemployment Insurance, or are not in the labor force, the effect of sub-baccalaureate education on the probability of employment cannot be known. Most analyses fail to distinguish men from women, and data that could be used to control for other causes of variation—family background, high school preparation, labor market experience, or ability—are not available. While some of these problems (like failure to consider gender) are easily remedied, others are difficult to resolve, which suggests that state and local results are best used in conjunction with national results. Where the results are relatively consistent, there's greater assurance that the results are reliable. Despite the problems, the potential uses of state and local data are quite varied and include the following: program improvement; identifying high-wage, high-growth programs; information to prospective students; accountability; and performance-based funding.

I present findings from five states that are in the lead in using UI data: California, Washington, Florida, Texas, and North Carolina. Because each state takes a different approach, these results highlight different possibilities for state and local data.

California

When California first used UI data, Friedlander (1993) generated outcomes for Santa Barbara and Grossmont Community Colleges. Three years after leaving college, those with Associate degrees earned 20 percent more than certificate holders, who in turn earned 5 percent more than those who left with at least 12 credits but without any credential. These differences did not appear the first year after leaving, clarifying the importance of analyzing results after several years. Obtaining credentials increased the earnings of both poor and non-poor students and narrowed the gap substantially from what it was prior to leaving college. Technical fields (drafting, electronics, computer science) and medical occupations (nursing and radiology) had

the highest returns, as one might expect. Low-tech fields—restaurant management, graphic arts, business, Office and Information Systems (OIS)—had the lowest returns, with differences sharper three years after college than one year out.

California has continued to develop data for the state as a whole and for individual colleges. Median earnings during the last year in college are used as a control for an individual's earning capacity prior to leaving community college; median earnings three years after college are used as the measure of post-education outcomes. The results confirm a familiar pattern: while the overall increase in earnings from the last year of college to three years after leaving is modest (12.4 %), the increase is much greater for those earning Associate degrees (54%) and certificates (29.3%) than for those with less than 12 credits, who earn only 7.8 percent more.

The increases are roughly the same for men and women, and for all racial and ethnic groups except blacks, for whom the increase is quite small (2.7%), suggesting a problem with labor market discrimination. (However, results for those earning Associate degrees and certificates suggest that there is no black/white difference.) The increases are much higher (49.1%) for traditional-age students, while they actually decline for those 35 and older, whose four-quarter employment rate also falls from 81.2 percent to 73.5 percent; this group includes dislocated workers forced out of stable, high-paying jobs and being retrained for less lucrative positions, while traditional-age students benefit the most from moving from essentially unskilled positions into more substantial employment. The results indicate large increases (both relative and absolute) for those who are academically or economically disadvantaged, or disabled, while LEP (Limited English Proficient) and non-LEP students benefit about the same amount in relative terms.

Washington

Washington collects UI data for many programs, including secondary vocational education, postsecondary occupational preparation at community colleges, adult basic skills education, and JTPA, distinguishing the results for adult, youth, and dislocated workers. For each one, those enrolled in programs are compared to similar groups that have not enrolled.

Results indicate a widening difference over time in employment rates, wage rates, and earnings between community college students and the comparison group. Hourly wages during the third post-program quarter were \$1.86 an hour higher for completers and \$0.22 for leavers; during the 13th quarter these were \$3.14 and \$0.46 respectively. The state's benefit-cost analysis of postsecondary occupational training using employment results (Workforce Training and Education Coordinating Board, 1996, Figure 16) indicates short-term benefits to participants at the expense of taxpayers, and long-run

benefits to both participants and taxpayers as increased taxes and reduced welfare benefits more than offset the initial costs of providing education. These results bolster the case for additional education and training; other results suggest that adult basic education and JTPA youth programs, with costs outweighing benefits, need substantial changes.

Those completing certificates and Associate degrees have higher wages and higher employment rates than those leaving without certificates. As a result, retention and completion of credentials have become higher priorities (Seppanen, 1998). Median wages vary in obvious ways, with health occupations, industrial technicians, and airframe/power plant mechanics having the highest wages, while personal services, cosmetology, administrative support (clerks), and early childhood education have especially low wages.

Washington's results suggest that some programs have selection (or self-selection) mechanisms operating, since the pre-college wages of those in high- and middle-wage programs are higher than those of other students. It is also likely that some individuals use community colleges to progress within occupations where they are already employed. Moreover, since completion may not benefit individuals in low-wage programs (Seppanen, 1998, Table III), policy-makers are rethinking the emphasis on low-wage jobs for welfare recipients, and are trying to create linkages or "ladders" to higher-wage occupations.

Many results are available for individual colleges. Although it isn't yet clear how such results are being used—partly because the results are quite political—researchers and administrators at Bellevue Community College used them to identify high-wage programs, respond to state accountability requirements, and develop partnerships with employers in information technology (Hutchinson, Kline, Mandt, & Marks, 1998). Washington proposed using the data to monitor a requirement that graduates of all programs earn at least \$12 an hour. However, while such a target is feasible for health and computer-related programs, it is almost impossible for those occupations in agriculture, early childhood education and personal services, or for colleges in rural areas. Programs for welfare recipients feared that they could not meet this target. The outcry from local colleges forced the state to rescind the requirement. This incident illustrates perfectly the pitfalls in establishing outcome standards: with so much variation among colleges, among occupational areas, and among students, any simple standard is likely to be impossible to meet.

Florida

The Florida Education and Training Placement Information Program (FETPIP) includes data on every kind of public education and can therefore be used to track the progression of students throughout the system. Results indicate that the A.A. degree facilitates

transfer to four-year colleges. In four years, 47 percent of the individuals in the 1990-91 cohort with an A.A. had earned a B.A.; however, no other kind of schooling was effective in promoting transfer. The results reveal problems in progression through the state's system: of those who had earned vocational credits in community college or district postsecondary programs in 1990-91, only 4 percent had attained a credential four years later.

The FETPIP system collects data on earnings from the UI wage record files as well. The results seem to indicate that those with any postsecondary vocational credits earn substantially more than high school graduates. Individuals with Associate of Science degrees earn more than twice as much as high school graduates, even more than those with baccalaureate degrees. However, when nurses are excluded, those with A.S. degrees earn slightly less than those with baccalaureate degrees, re-establishing the expected pattern. Without disentangling the effects of experience, field of study, and gender—since men and women are combined in these results—it is difficult to make too much of these findings.

Because FETPIP includes information from the state's welfare and corrections agencies, the data indicate the effect of education on the receipt of public assistance (food stamps or AFDC) and involvement with corrections (incarcerated or on parole). High school dropouts are at greatest risk; those with community college vocational education and postsecondary credentials have by far the lowest risk. Although these results are hardly surprising, they indicate the ways in which a state's data system can incorporate outcomes other than employment and earnings.

Florida is currently moving toward performance-based funding and is debating how performance is to be measured and weighed, though completion rates and job placement rates are likely to be included; other measures currently being discussed, such as the duration of initial employment, are still controversial, or are not well measured by FETPIP.

The Florida experience indicates the varied uses of a system incorporating UI wage record data as well as information from a variety of state agencies. The information on student flows through the system, for example, reveals patterns of transfer and completion that can be obtained in no other way. The results, distinguishing district-sponsored vocational programs from short-term programs in community colleges, also provide information specific to Florida's particular educational structure that national data could never generate.

Texas

Texas used to follow graduates through questionnaires, with very low response rates. The current efforts to develop a UI-based data system began when several colleges wanted to develop measures of effectiveness as part of accreditation

reviews. While the state has been the leader in developing the data system, the analyses are largely the responsibility of local colleges—consistent with Texas' history of strong local control. The office of institutional research at each community college gets data from the state's Higher Education Coordination Board, controls how the data are used, and pays for any analyses.

As a result of local control, there is little state-level analysis. One exception is the state's "report card" on all education and training programs, which provides information on the earnings of leavers and graduates of various programs. In addition the Texas Higher Education Coordinating Board gets program-level data for each community college. Then an "institutional effectiveness team" from the board visits each college to discuss the results. Texas has a performance standard requiring that 85 percent of students leaving must either enter the labor force, enter the military, or transfer into another education program. Those programs that do not meet the standard can generate their own data based on follow-up surveys so that programs affected by self-employment (like cosmetology and real estate) or mobility out of the state are not unfairly reviewed.

Finally, the legislature is considering shifting to a performance-based funding system, for which the development of a statewide data system is a necessary prerequisite.

North Carolina

North Carolina's Common Follow-up System (CFS) includes the Departments of Correction, Labor, and Employment and Training, as well as the agencies responsible for K-12 education, community colleges, and the university system. Some preliminary results for community colleges illustrate the importance of controlling for experience or—as a proxy—for age. The earnings differences among those with varying credentials are trivial for those 21 to 24 and even 25 to 29, when those with A.A.S. degrees earn more than those with baccalaureate degrees—no doubt because of experience. The expected patterns emerge only in the 35 to 39 age group; then the absolute differentials increase for those 40 and over. Once again, these results indicate the problems of relying on earnings measured too soon after students leave postsecondary education, and of examining earnings without disentangling the effects of experience.

North Carolina disaggregates groups of students, distinguishing those who leave and return to school ("comeback" students)—and who may earn less because they are working part-time—as well as those of different ages and with different diplomas. For traditional-age students under age 25, those leaving with credentials earned 16.5 percent more than those leaving without credentials. However, for older groups, non-completers earned substantially more than completers. If older workers are already employed and enroll for short periods of upgrade training, they will

show up as non-completers with high earnings, whereas those who enroll for retraining—dislocated workers searching for new careers, for example—are likely to complete credentials but then be forced to find entry-level employment. Therefore information on prior earnings, student intentions, or age and experience are necessary to interpret these results.

Some Conclusions and Future Prospects

State and local data confirm most of the findings from national studies. The economic benefits of sub-baccalaureate education are clear, particularly for students completing Associate degrees and certificates. The variation in benefits among fields of study has been confirmed in several states, with more detail than is available in national data. The benefits of small amounts of community college remain unclear, partly because comparisons with individuals completing high school only are usually unavailable; in some cases non-completers appear to benefit more than those who complete credentials, though this pattern may reflect experienced workers seeking upgrade training. Many results indicate that the benefits materialize relatively quickly, within three years of leaving education—though the long-run effects may be even greater. State-generated data can be used to compare different postsecondary programs, as Washington has done, or to examine the transitions among different kinds of postsecondary education (and into prisons and welfare), as in Florida.

Of course, these results may reflect variation in motivation, ability, or labor market experience. The substantial differences between the experiences of men and women, dimensions of family background, race, ethnicity, ability, or high school achievement are largely missing, or not considered even where such data are available.

In many states, the problems of developing UI-based data have been so substantial that more precise analyses have not yet been possible. In other cases, political issues—local control, for example—have prevented more sophisticated analyses. As states move to use these data for accountability and performance-based funding, the problems created by overly simple analysis are likely to generate opposition from colleges, who could claim that state figures misstate their local experiences. Thus, political pressures may force states into more sophisticated analyses.

The pressures for accountability continue to mount. The 1998 amendments to federal legislation for vocational education and the Workforce Investment Act require performance measures including placement and wage rates, measures that are readily calculated when a state has UI-based data but that are difficult and expensive without one.

As states develop their data systems and analyses, the uses are likely to expand as well. The value of these

data in providing information to prospective students is now being explored. Given the widespread emphasis on performance, their use as the basis for performance-based funding may not be far behind. Of course, the quality of data and analysis must be up to the challenges of these varying purposes. But as long as there is a forum for state and local officials to discuss the results, the process should improve our understanding of effectiveness. Thus we expect that state and local data on employment effects will continue to develop, though the process is unlikely to be smooth or fast. ❧

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