

CCRC BRIEF

NUMBER 23

AUGUST 2004

Who Benefits from Postsecondary Occupational Education? Findings from the 1980s and 1990s

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Technological changes in the workplace have placed considerable pressure on the U.S. educational system to prepare students for increasingly skill-based occupations. Employers reward new hires for having the skills or credentials needed for their job, underscoring the importance of having either the requisite “tools in your toolbox,” or some basic academic preparation to continue on into postsecondary education. This stress on knowledge acquisition has contributed to a growing wage gap between high school and college graduates.

Whether occupational education at the high school level, with its focus on immediate workforce entry after high school, adequately prepares students for college is a public concern. Since students who enroll in these programs are less likely to transfer to a four-year college to obtain a bachelor’s degree, occupational education is criticized for hampering their future earnings. Some of the criticisms of postsecondary occupational education could be allayed if the economic benefits were equal to (or greater than) those of other types of education. This Brief investigates the economic benefits of a community college education by analyzing the effects on post-college earnings of a student’s program of study (occupational or academic), the amount of schooling accumulated with and without attaining a degree, and the type of credential earned.

The Economic Outcomes of Postsecondary Education: Past Research Findings

The economic value of occupational education at all levels has been debated widely. One argument against occupational education at the secondary level is that it is impractical or outmoded since education beyond high school, and often at least a bachelor’s degree, is now considered to be necessary for access to economically viable jobs (see Eaton, 1993, and Dougherty, 1994, for comprehensive reviews). At the postsecondary level, an occupational degree has been

generally believed to be no more beneficial than either an academic degree or a high school diploma. (Brint & Karabel, 1989; Dougherty, 1994). From this perspective, community colleges are thought to be most effective when their programs lead students to transfer to a four-year program and eventually to earn a bachelor’s degree. In other words, community colleges can best promote student transfer not through occupational programs, but rather through more academically oriented ones explicitly designed as preparation for studies in a baccalaureate program. Many critics contend that postsecondary occupational programs have no role in assisting this transition.

In contrast, advocates of community college occupational education suggest that many students can indeed benefit financially from postsecondary education that does not lead to a bachelor’s degree. They assert that students with an associate degree are qualified for a growing number of technical and technician-level jobs that play key roles in the economy. While workers in these jobs do not earn as much as bachelor’s degree holders, they do earn more than high school graduates, and their postsecondary education takes less time and money. In general, advocates argue that some students can even benefit from education that ends short of an associate degree. Many students with well-defined goals enroll in certificate programs that can be completed in one year or less, or they simply take courses to learn some specific targeted skills. Thus, they can meet their immediate educational needs without spending time and money on degree-oriented courses.

A great deal of research supports the view that college is a profitable investment in that more schooling leads to higher earnings (see Card, 1999, for a review of recent studies). However, most of the research on the economic returns to college has focused on the four-year level despite the fact that more than half of the students who attend college soon after high school enroll in a community college. Moreover, of these students, a majority are enrolled in occupational programs.

In their studies, Kane and Rouse (1995; 1999) concluded that the economic return to an associate degree is roughly 15 to 25 percent higher than that for a high school diploma. Further, students with a baccalaureate degree earned 10 to 20 percent more than associate degree holders. They also found that the increased economic return to a year of coursework at a community college is the same as to a year at a four-year college: approximately 5 to 8 percent. In other words, a wage premium exists for students who

complete a degree compared with those who have similar years of postsecondary schooling but without the credential. In fact, some researchers have even suggested that attaining a credential appears to matter more than acquiring skills in college (Grubb, 2002; Card, 1999).

In his comprehensive review of the recent sub-baccalaureate literature, Grubb (2002) similarly found that individuals with associate degrees earned about 20 to 30 percent more than high school graduates, with estimates for men at the lower end of that range and those for women at the higher end. He also concluded that a single year of coursework (without completing a degree) at either a two- or a four-year school increased earnings by about 5 to 10 percent. Most notably, Grubb found varied returns to different occupational fields, but asserted that there is little value to academic associate degrees. Although he does not present estimates that differentiate between the aggregated academic and occupational fields, the implication is that the benefits accruing from associate degrees are the result of positive returns to occupational degrees. Thus, if the overall estimates of the returns to associate degrees are in the 20 to 30 percent range, then the returns to occupational degrees could be even higher.

Leigh and Gill (1997) estimated the returns for older students (those aged 28 to 35). They found that older female students with community college degrees did not earn significantly more than those without a credential. In contrast, the value of a bachelor's degree to older students ranged from 46 percent to 73 percent. In addition, they reported that the value of attending a community college without receiving a credential was higher for older men than for younger men, possibly because older men were more likely to enroll for specific employment-related purposes.

Finally, education is widely viewed as a means to reduce the inequality in earnings between racial/ethnic minorities and whites. Given that black and Hispanic students comprise a disproportionately larger share of community college enrollment, there is mounting pressure on community colleges, in particular, occupational education, to erase the existing earnings inequality. However, Averett and D'Allesandro (2001) indicated few statistically significant differences in the returns to education between black and white students, which they attributed to small sample sizes. They did identify a consistent pattern in the data, however. Although the returns to an associate degree for blacks were generally higher than returns for whites the slightly higher returns for blacks were offset by their lower completion rates.

The Economic Outcomes of A Community College Education: Current Research Findings

Overall

In general, the experience of individuals in the three samples considered in this Brief demonstrated that

economic outcomes improved with education in expected ways (see the box on page 4 of this Brief for information on data sources and sample populations for this study). Higher levels of education were associated with more stable and economically sustaining employment outcomes, and employment outcomes improved as individuals completed more years of education.

Based on a representative sample of young adults, those who enrolled in postsecondary education were much more likely to be employed. Ninety-one percent of initial community college students and 95 percent of initial baccalaureate students were employed in 2000, while only 80 percent of high school dropouts were employed. In addition, those with higher levels of education were also more likely to be employed full-time. Seventy-seven percent of high school graduates were employed full-time in 2000, while 86 percent of associate degree holders and 91 percent of those with a bachelor's degree were employed full-time. At similar levels of education, however, men enjoyed a clear advantage over women. Among initial community college students, nearly 97 percent of men were currently employed and 93 percent were employed full-time, compared with 85 and 73 percent, respectively, of women.

The average wage and salary income for a representative sample of young adults in 1999 was \$26,028. Among high school dropouts, mean wage and salary income was \$20,295. Individuals whose initial postsecondary enrollment was at the community college level reported earnings of \$25,600; those initially enrolled at the baccalaureate level earned \$32,804. Among community college students, those in occupational programs reported slightly higher earnings. There was a gender gap in income, too. Men with a community college education earned \$3 more per hour than women with a similar level of education; however, the gender difference in wage and salary outcomes diminished as education increased.

Economic outcomes were higher for students with higher degrees. Individuals with a high school equivalency diploma (GED) reported mean earnings in 1999 of \$20,280, while those with a high school diploma as their highest degree reported mean earnings of \$23,297. Respondents with associate degrees earned \$27,225 on average. The exception to this pattern was the relatively low earnings reported by certificate holders; mean earnings for this group were \$22,426.

Degree Completers

*Completing a **certificate** increases women's earnings, but provides no statistically significant economic benefit for men.* Women who completed a certificate earned about 16 percent more than the average female high school graduate, but the economic gains were not statistically greater than those of similar women who completed one year of postsecondary education but did not attain a degree. Men who completed a certificate did not earn significantly more than those who were high school graduates.

*Earning an **associate degree** is highly beneficial for both women and men, and this benefit is higher for occupational students than for academic students.* Compared with women with no postsecondary education, women who earned an associate degree experienced a substantial premium of 39 percent. There is also evidence that female occupational students earned significantly more than similar students who had the same years of postsecondary schooling but no degree. The overall return to an associate degree for men was 16 percent. Men in occupational programs who attained an associate degree earned more than those with no postsecondary education. However, the difference in earnings between those with an associate degree and individuals with no postsecondary education was not significant.

*Earning a **bachelor's degree** results in substantial returns to both genders.* Our analysis showed that the economic benefit of bachelor's degrees was substantial: students who obtained this degree earned between 56 and 66 percent more than high school graduates. For both men and women, the returns to a bachelor's degree were more than four times the return to one year of postsecondary education for a baccalaureate student without a degree. However, there was no statistical difference in the earnings of bachelor's degree holders and those with four years of postsecondary education and no degree.

Coursework Completers

***Students who take any type of postsecondary coursework** without earning a credential experience some economic benefit.* Women in baccalaureate programs who did not earn a degree still earned 15 percent more than women without any postsecondary education. Women enrolled in community colleges who did not earn a credential had lower returns to a year of coursework than similar baccalaureate women, but their economic outcomes were still 10 percent higher than the outcomes of women without any postsecondary education. Men who did not earn a credential in postsecondary education also experienced an economic benefit, but the returns were not as large as they were for women. Specifically, the economic value of a year of baccalaureate postsecondary education was 10 percent, while the return to a year of community college education was 6 percent, which is similar to previous findings.

*Among **community college occupational students** who do not earn a credential, women experience little economic benefit from their postsecondary coursework, while men have modest benefits.* Occupational women who did not earn a degree or credential from their community college enrollment had significantly lower returns to a year of coursework than did similar academic women (5 percent versus 15 percent). In contrast, occupational men who did not attain a degree or credential earned 8 percent more than men without any postsecondary education and 4 percent more than those in academic programs.

Outcomes for Special Populations

***Community college occupational students** who had a vocational curriculum in high school earn no more than those without such high school vocational preparation.* The one exception to this finding was for women with high school vocational training who earned associate degrees: they experienced significantly higher earnings than students who did not have high school vocational curricula. The robustness of this finding may be compromised by the small sample size, however.

***Younger students** generally realize economic benefits from postsecondary education while the benefits for older students are negligible.* The returns for younger students (under 24) who earned a credential were generally positive. Young occupational women who earned an associate degree received 37 percent higher economic returns than those without postsecondary education. While initially the returns were positive for young men with certificates and associate degrees, and not statistically different from the returns for high school graduates, in the long term male degree completers showed earnings gains over high school graduates.

Conversely, the economic outcomes of older men and women with postsecondary education were no different (and in some cases, worse) from those of similar-aged individuals with no postsecondary education. Moreover, there was some evidence that attaining a certificate lowered earnings for older students, although the small sample size may compromise the power of age-based findings.

***Black men** earn less than white men with similar levels of education, but the earnings difference between black (and Hispanic) women and white women is insignificant.* Black men earned on average 38 percent less than white men, irrespective of level of education. For women, however, immediate economic outcomes were not statistically different along lines of race and ethnicity.

*Occupational education in community colleges can lead to positive earnings outcomes for **students who are academically challenged*** (those ranked in the lower two quartiles of the standardized reading and math tests administered in the twelfth grade). The average economic returns for academically challenged women who earned an associate degree were large and significant—roughly 44 percent greater than those without any postsecondary education. However, such women with postsecondary education who did not earn a credential earned about the same as high school graduates.

Academically challenged men experienced economic gains from earning an associate degree and from occupational coursework not leading to a credential. This finding suggests an incentive for academically challenged women in occupational programs to persist and attain a community college degree, while there is no such incentive for their male counterparts, as economic benefits accrue for them with postsecondary coursework only.

There is an economic benefit from community college occupational education, though it differs by gender, for **economically disadvantaged students** (those whose total family income during their last year of high school was less than \$20,000). There was a positive and significant effect on earnings for economically disadvantaged occupational females who held an associate degree, yet women received no significant benefit from occupational coursework without a credential.

Conversely, economically disadvantaged men experienced sizeable returns to occupational coursework without a credential, but no significant additional gains were realized for those who earned an associate degree. As with academically challenged students, economically disadvantaged women in occupational programs have an incentive to earn a degree, while their male counterparts do not have a similar economic motivation toward completion.

Conclusions

Our findings generally support the conclusion that students benefit from a community college education when compared with those who have only a high school diploma. We also found that community college occupational students do at least as well as, and in some cases significantly better than, students in academic programs. Moreover, certificate and associate degree holders generally have higher returns to education than do individuals with similar years of postsecondary education but no credential; however, in some instances the difference is not statistically significant. Finally, there are noticeable differences in the returns to postsecondary education and degrees by gender, with women generally experiencing a greater economic benefit from schooling and credentials than do men.

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DATA SOURCES

The findings in this Brief are based on information elicited from three nationally representative samples of young adults in each of the last two decades: Beginning Postsecondary Students Longitudinal Study 1989-94 (BPS89), High School and Beyond 1980-92 (HS&B), and National Education Longitudinal Study of 1988 (NELS). BPS89 allows examination of the immediate economic outcomes of community college students approximately one-to-two years after college, while HS&B and NELS extend the post-college period to roughly five-to-seven years.

We measured the benefits of postsecondary education and degrees using the annual income of all individuals from the last observable year of each study: 1993 for BPS89; 1991 for HS&B; and 1999 for NELS. For BPS89 and HS&B, postsecondary enrollment is based on student self-reported monthly enrollment. However, enrollment information with this level of detail was not available in the last six years of NELS (from 1994 to 2000). Instead, students were asked to report their highest degree. Those who had not completed a degree were asked to estimate the total full-time equivalent (FTE) years of postsecondary education completed, but this figure is capped at three years.

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This Brief was prepared by the Community College Research Center (CCRC), Teachers College, Columbia University. More information on the research summarized here is available from CCRC.