Do Community Colleges Respond to Local Needs?
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Studies of Community Colleges’ Responsiveness to Changes in Employer Skill Requirements

In Chapter 1 we advanced a definition of labor market responsiveness borrowed from the recent U.S. Department of Education (DoED) Community College Labor Market Responsiveness Initiative. An important aspect of this definition is that a labor market responsive community college seeks to develop programs that are aligned to changes on both the demand and supply side of its local labor market. Based on the DoED definition, we posed two research questions that we propose to answer using California community college data. Literature related to the first question, which concerns important supply-side change associated with immigration, was reviewed in Chapter 3. The second question asked whether community colleges respond to changing demand conditions by providing occupational training programs that produce skills marketable in the local economy.

Economists use the term labor market efficiency to refer to the speed with which individuals seeking employment are matched to vacant jobs in local labor markets. To provide some background for our consideration of Research Question 2, we review in this chapter a fragmented literature that looks at the role of community colleges in increasing labor market efficiency by putting in place training curriculums responsive to local employer needs. The first three entries of Table 4.1 provide an overview of the primary approaches taken in this literature.

Drawing on this table, we begin by examining the empirical literature measuring the impact of community college training programs on labor market outcomes. In the second section we consider qualitative and some quantitative results from the DoED Community College Labor Market Responsiveness Initiative. We then give an overview of a small number of studies examining contract training, typically the most direct form of outreach by community colleges to local employers. We conclude by outlining a new empirically based approach to measuring,
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<th>Approach</th>
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<td>Estimate labor market effects of alternative CC fields of study.</td>
<td>Leigh and Gill (2001); Jacobson, LaLonde, and Sullivan (2005a,b).</td>
<td>Estimates are available from national data, but preferred estimates come from state administrative data matching CC student records with UI wage histories.</td>
<td>Enrollment in a CC has a positive impact on earnings, with earnings estimates varying substantially across fields of study.</td>
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<td>Site visits to learn what CCs can do to become more responsive to local labor market needs.</td>
<td>DoED Community College Labor Market Responsiveness Initiative (MacAllum and Yoder 2004).</td>
<td>Information obtained from visiting over 30 CCs, including four in California.</td>
<td>“Best practice” examples and two survey instruments intended to provide guidance to college administrators seeking greater labor market responsiveness.</td>
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<td>Investigate whether, for local labor markets, the occupational skills supplied by CCs match employers’ demand for skills.</td>
<td>Jacobson, et al. (2005) and present study.</td>
<td>Use data on field of study collected for individual colleges and indicators of demand for local labor markets.</td>
<td>Evidence for Florida suggests a correspondence between college curriculums and community and employer characteristics. Our evidence for California appears in Chapter 7.</td>
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at the local labor market level, the performance of community colleges in supplying occupational training that matches employers’ demand for skills. This approach is summarized in the fourth entry of Table 4.1.

**EFFECTS ON LABOR MARKET OUTCOMES**

Kane and Rouse (1999) provide a survey of the limited literature, relative to that available for four-year colleges, that supplies estimates of the labor market payoffs to community college programs. Two of these studies, Kane and Rouse (1995) and Leigh and Gill (1997), were introduced in Chapter 3. Using national data, these articles demonstrate that a year’s worth of credits earned at a community college is associated with a 5–8 percent increase in annual earnings, about the same impact as a year’s worth of credits at a four-year college. Evidence is also presented indicating that there is a premium as high as 27 percent for earning an AA degree. Finally, the authors find that even the average community college student who enrolls but does not complete a degree or certificate still earns 6–12 percent more than the average high school graduate. In a more recent study, Gill and Leigh (2003) add evidence that the earnings of four-year college graduates who started at a community college are not substantially different from the earnings of BA degree recipients who started at a four-year college.

This literature suggests that, *on average*, enrolling in a community college does enhance earnings prospects. Nevertheless, positive average earnings effects may disguise quite different effects estimated for different programs. Grubb (1996, Chapter 3) makes the point that because occupational skills programs tend to be job-specific, the economic returns may be low or even zero if an individual cannot find training-related employment in the local labor market. Using national data from the National Longitudinal Survey of Youth (NLSY), Leigh and Gill (2001) estimate the returns to seven different fields of study. We find that the size of the earnings premium varies substantially by field of study, with engineering/computer science and social science/public service the highest-paying fields for men, and nursing the highest-paying field for women.
While some nationally representative data sets like the NLSY include information on community college field of study, more detailed and credible results require access to information for larger numbers of community college students and for geographic areas more closely aligned to local labor markets. As indicated by Grubb and others such as Mueser, Troske, and Gorislavsky (2003), the most promising approach to obtaining the desired data is to make use of administrative data available at the state level matching community college student records, which contain field of study, to individuals’ earnings records obtained from Unemployment Insurance (UI) earnings histories. Grubb summarizes the results of a study of two California community colleges (Santa Barbara City College and Grossmont College) that uses data matching student records with UI wage histories. Cross tabulations presented show substantial differences in economic returns by field of study and by receipt of a degree or certificate. In a similar study that is part of the DoED Community College Labor Market Responsiveness Initiative, Jacobson et al. (2005) use student records matched with UI wage records for the Florida community college system. The authors’ cross-tabulation results reveal that while there are not substantial differences in earnings prior to entering college, postcollege differences by field of study are quite large, with students who completed programs in engineering and technology earning over 45 percent more than graduates in nonvocational or leisure programs.

A larger-scale and more definitive study using student records matched with UI wage records is Jacobson, LaLonde, and Sullivan’s (2005a,b) examination of the labor market payoffs to programs offered at all 25 campuses in the Washington state community college system. Their data set contains observations for over 65,000 dislocated workers who lost their jobs during the first half of the 1990s. For each dislocated worker, 14 years of quarterly earnings records are available for analysis. Making use of the longitudinal nature of the data, Jacobson, LaLonde, and Sullivan reach four main conclusions. First, they find that estimated returns to a year of community college credits are substantial—about 7–9 percent for men over age 35 and 10–13 percent for women over age 35. Second, these earnings gains are comparable in size to those for dislocated workers younger than age 35. Third, since workers’ earnings may be temporarily depressed in the period immediately after leaving
college, they demonstrate that it is important to have sufficient postcollege information so that long-term earnings gains can be estimated.

The final and possibly most important conclusion for this chapter is the authors’ finding that earnings estimates differ substantially by major field of study. For men, large long-term quarterly earnings gains on the order of about 14 percent are obtained for academic courses in science and mathematics as well as for more technically oriented occupational skills courses, including courses in health occupations. The gains are larger for women—about 29 percent. For all other community college courses, long-term earnings gains for both males and females are close to zero.

Other than Jacobson, LaLonde, and Sullivan (2005a,b), few studies are available that use matched administrative data sets to estimate returns to alternative community college fields of study. There is clearly a need for studies that examine matched data for states other than Washington and for individuals in addition to dislocated workers. Unfortunately, researchers’ access to matched state administrative records appears to have been significantly curtailed as of spring 2003 by a restrictive interpretation for the DoED of the federal Family Educational Rights Privacy Act.\(^1\) Jacobson et al. (2005) also comment that they found it extraordinarily time consuming and difficult to obtain individual-level data on field of study linked to wage record files.

**THE DoED COMMUNITY COLLEGE LABOR MARKET RESPONSIVENESS INITIATIVE**

More evidence on the linkage between community college training programs and employer needs has recently been supplied by the large-scale DoED Community College Labor Market Responsiveness Initiative. This initiative produced the following major research outputs:

- A literature review intended to identify the characteristics of market-responsive community colleges.
- A three-volume handbook designed to assist community colleges to become more market driven.
• A set of three research appendices that provide additional information on the colleges and local labor markets analyzed in the initiative and a discussion of the different approaches that might be taken to measure labor market responsiveness.

We discuss each of these research outputs in turn.

**Characteristics of a Labor Market-Responsive Community College**

Harmon and MacAllum (2003) review over 200 articles with two questions in mind: First, is there a consensus as to what constitutes a market-responsive community college? Second, are there particular community colleges that offer exemplary market-responsive programs? In connection with the first question, their reading of the literature indicates that market-responsive colleges share several key characteristics. These include a leadership committed to a market-responsive mission, an internal response mechanism dedicated to rapidly developing new occupational skills curriculums, and close ties to local businesses and workforce and educational organizations.

**Assisting Community Colleges to Become More Market Driven**

Building on this literature review, the DoED initiative’s second major research product is a three-volume handbook designed to assist community colleges that wish to become more market driven (MacAllum and Yoder 2004). The handbook is developed from information gained from site visits to more than 30 community colleges serving 10 distinct labor market areas scattered across the nation. Four California community colleges, all serving the San Diego metropolitan area, were visited.

Volume 1 of the handbook, titled “Unleashing the Power of the Community College,” draws on interviews with college administrators and faculty as well as local employers, community-based organizations, and economic development agencies to develop seven “modules” summarizing important lessons learned from the site visits. The first three of these modules relate to a college’s leadership and governance, organizational structure, and culture. More relevant to our study are the final four modules, which include the following:
1) Resources and funding. Responsive colleges look beyond traditional state funding to access a wide variety of resources including grants, local and state initiatives, federal funds, in-kind donations, and employer partnerships.

2) Information and data. Awareness of local and regional economic and workforce trends and personal contact with employers and the economic development community are crucial to responsive colleges for gathering current local labor market information.

3) Relationship-building. Responsive colleges reach out to a variety of constituents including employers and economic development agencies, industry associations, community-based organizations, K-12 systems, four-year colleges, Workforce Investment Boards, and unions.

4) Partnerships. Responsive colleges seek out partnership opportunities with employers and industry associations. Large employers and innovative industries are particularly attractive partners.

Volume 2 of the handbook, titled “Promising Practices and Lessons from the Field,” provides examples from the 30 colleges visited of successful applications of these modules. In Volume 3 (“Self-Assessment Tools and Resources”), two instruments are presented that are designed to provide practical guidance to administrators for improving their colleges’ labor market responsiveness. Building on the seven modules outlined in Volume 1, the first instrument is intended to help administrators identify areas that may be hindering responsiveness and develop strategies for dealing with these problem areas. The second provides administrators with a tool for assessing the needs of the local labor market.

**Research Appendices**

For our purposes, the DoED initiative’s third major research product consisting of three research appendices is probably the most useful (Jacobson et al. 2005). In the first appendix, the authors use Integrated Postsecondary Education Data System information on key characteristics of the nation’s 1,190 community colleges as well as the 30 colleges specifically examined in the handbook. Examples of these key char-
acteristics are college enrollment and sources of institutional funding. Using cross-tabulations, the key characteristics are linked to local labor market characteristics such as city size, selected demographic statistics, and the industrial mix of the local economy. Based on this analysis, the authors conclude that colleges that offer extensive market-responsive programs tend to have

- Large enrollments.
- Substantial revenues from local government sources. As suggested by the “resources and funding” module, these revenues represent a “buy-in” from local civic and business leaders.
- A suburban location in a major metropolitan area. Consistent with the “partnerships” module, proximity to high-tech employers is especially important.

In a second appendix, Jacobson et al. (2005) describe the industrial mix of nine major labor market areas included in the study and identify differences in employer demand for alternative types of training across these nine areas. The authors find that demand-side differences between local labor markets are broadly consistent with information provided by college officials about the major skill areas in which they are developing programs and partnering with local employers.

In the final appendix, Jacobson et al. (2005) discuss the types of analyses that could be done to measure labor market responsiveness. As part of this discussion, the authors make use of student records matched with UI wage records for Florida to examine the labor market payoffs to different fields of study. As described earlier, the authors report that average labor market gains to community college training programs vary considerably. In addition, they use data for three particular Florida community colleges to look for differences in enrollment across fields of study. Their analysis is only briefly described in the appendix. However, the results indicate that there are substantial differences between colleges in curriculum emphases, and that these differences are qualitatively consistent with differences in community characteristics and the industrial mix of local employers.
CONTRACT TRAINING PROGRAMS

Contract training programs differ from regular community college curriculums in three respects. First, courses are tailored or customized to meet the training requirements of particular employers. Second, the cost of training is paid for directly by the employer or by a government entity on behalf of the employer. Contract training thus may supply an important incremental source of revenue for financially hard-pressed community colleges. Third, contract training courses are typically designed to improve the skills of incumbent workers or those of unemployed workers seeking employment with the particular employer.

Virtually all community colleges provide contract training to local employers. Dougherty (2003) points out, however, that the level of contract training activity varies across colleges. In particular, contract training varies with the size and industry mix of local employers. Using national employer data and measuring establishment size by number of employees, Dougherty reports that utilization of community colleges for formal training ranges from 26.5 percent for establishments with less than 100 employees to 57.0 percent for establishments with 500 or more employees. This positive relationship is expected for a number of reasons. Specifically, large firms as compared to small firms

- are more likely to provide formal as opposed to informal training opportunities,
- are more likely to offer a progression of jobs that aids in employee retention,
- can spread the fixed costs of training programs over a greater number of trainees,
- are more aware of community college training programs and better able to leverage government subsidies, and
- are more attractive partners to community colleges because of larger potential enrollment and greater opportunities for future economic and political payoffs.

With respect to industry mix, Dougherty (2003) reports rates of community college utilization as low as 24.1 percent and 9.4 percent, respectively, for employers in wholesale trade and retail trade. At the
other extreme, community college utilization rates for employers in durable goods manufacturing and finance, insurance, and real estate are 47.1 percent and 47.0 percent, respectively. Dougherty points out that while establishment size and industry composition are related, the large differences in community college utilization he observes also arise because state subsidies for workforce training tend to favor certain industries, such as manufacturing, over others.

Turning from the incidence of contract training to its effectiveness, Isbell, Trutko, and Barnow (2000) summarize the results of a U.S. Department of Labor–funded assessment of nine exemplary contract training programs supported under the Job Training Partnership Act (JTPA). Industry affiliations of the nine employers involved in these programs include manufacturing, health care, banking, retail sales, temporary services, utilities, and transportation. Training services, which include classroom and on-the-job training as well as adult basic skills, were designed to prepare workers for specific job openings at the company sponsoring the training. Providers of training included community and technical colleges, for-profit career colleges, nonprofit community-based organizations, and employers themselves. Participants were individuals eligible for JTPA assistance who were screened according to company employment criteria.

Isbell, Trutko, and Barnow (2000) indicate that contract training yields a number of benefits. These include

• a high rate of program completion,
• placement in jobs for almost all training completers,
• hourly wages that exceed average wages for similarly skilled workers in the local area,
• uniform receipt of fringe benefits, and
• high retention rates.

Given the range of benefits of contract training, the authors raise the question of why contract training is not more widely used. They suggest that there are four main barriers. First, local labor markets must be tight so that employers face an excess demand for workers possessing occupational skills. Second, small and midsized companies may lack the critical mass of workers and resources needed to undertake contract training programs. Third, the time and effort involved in negotiating
and designing a contract training program can be considerable for both the employers and the local government agency. Finally, wariness of government red tape and the uncertainty of future government support cause employers to be reluctant to committing to contract training.

A second study of contract training effectiveness by Krueger and Rouse (1998) is noteworthy for two reasons. First, it is specific to contract training supplied by community colleges. Second, it provides a useful illustration of what can be learned from a data set linking college administrative records with employer personnel files. The government-subsidized community college training was offered to incumbent workers at two midsized companies in New Jersey, and the content of training was largely adult basic education targeted to low-skilled workers. Krueger and Rouse find modest employment effects for training participants, even though there may have been negative selection into both programs. For the service company studied, there is no significant effect of the program on wage changes of participants relative to nonparticipants. However, participants were more likely to be nominated for or to win a performance award following training. For the manufacturing company examined, average wage growth for trainees is higher than for nontrainees, and trainees are more likely to bid for new jobs and to receive promotions than comparable nontrainees.

MATCHING THE SUPPLY OF TRAINING WITH OCCUPATIONAL DEMAND PROJECTIONS

So far in this chapter we have outlined three approaches that appear in the literature assessing the impact of community colleges on labor market efficiency. However, there are difficulties with each of these approaches that cause us, as indicated by the final entry of Table 4.1, to pursue still another approach. With respect to the first approach using matched student record–UI wage history data, we noted in the first section that, unfortunately, we were unable to obtain matched data for California. The second approach involves site visits such as those reported on in the DoED’s Community College Labor Market Responsiveness Initiative. While site visits provide interesting examples of labor market-responsive colleges, the evidence is primarily anecdotal and may
be difficult to generalize. Our objective is to move beyond anecdotes to provide quantitative evidence for all community colleges in the California Community College System. The third approach is an intriguing option, but data limitations prevent us from using contract training as a “market signal” indicator of community colleges’ labor market responsiveness. As pointed out by Jacobson et al. (2005), contract training seldom shows up on most colleges’ data systems, which are geared to counting enrollment in for-credit courses to meet state and local reimbursement requirements and to satisfy federal reporting requirements.

The approach we do take builds on the preliminary analysis of Jacobson et al. (2005) assessing the quality of matches between the supply and demand for training services at the local labor market level. Beginning with the supply side, we use CCCS student records that furnish data on courses completed classified by occupational Taxonomy of Programs (TOP) codes. For each CCCS college, we calculate the percentage distribution of new skills supplied across major occupational categories by a student cohort followed over a six-year period. (Three such occupational categories, for example, are business, information technology, and food and hospitality.) On the demand side, we estimate the demand for skills at the county level for the same major occupational TOP code categories. As described in Chapter 7, demand-side measures come from labor market–demand projections made by the Labor Market Information Division of California’s Employment Development Department.

We then construct an index of responsiveness to measure how closely the distribution of new skills supplied by each community college is matched with demand-side occupational employment projections for the county in which the college is located. The final step in the analysis is an attempt to explain differences in the quality of matches across colleges by determinants such as those outlined by Jacobson et al. (2005). Recall from the second section that these variables include college enrollment, share of revenue from local government sources, and a suburban location in a major metropolitan area.
1. We had initially planned to estimate the returns to alternative fields of study using matched data for California community college students. In California, UI wage histories are maintained by the Labor Market Information Division (LMID) of the state’s Employment Development Department (EDD). We negotiated with EDD for well over a year to obtain a match between the California Community College System student records we already possessed and EDD’s wage records. These negotiations eventually proved fruitless, and we turned to an alternative approach to evaluating community college responsiveness. This is the fourth approach outlined in Table 4.1.