THE NEW ECONOMIC DEVELOPMENT ROLE OF THE COMMUNITY COLLEGE

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ABSTRACT

Community colleges have long been involved in workforce preparation and economic development—in the form of the occupational education of students. But in the last two decades, community colleges have greatly broadened their economic development role to include contract training, small-business incubation and assistance, and local economic planning.

Contract training. Over 90 percent of community colleges offer contract training. Unlike traditional occupational education, contract training involves an outside party—a business or a government agency—rather than the individual student as the primary client. The contractor largely determines who receives the training and the content of the training. Even if the content is little different from a college's traditional vocational offerings, contract training programs are customized to the contractor's requirements in other regards, such as where, when, and how the training is delivered. Rigorous studies of the impact of contract training on trainees and their employers are scarce. The studies available do show positive effects on both, but the data are too sparse to allow definitive conclusions. However, more definite findings are available about the impact on community colleges themselves. Contract training boosts enrollments and revenues. It enlarges business's external support for, and internal involvement in, the community college. It changes the content of the vocational courses and the liberal arts courses servicing them. It raises the standing of continuing education faculty, but brings them into conflict with traditional vocational faculty. And more speculatively, there is evidence that contract training may erode the commitment of community colleges to traditional liberal arts values, transfer education, and remedial education.

Small-business assistance and incubation. Over a third of community colleges offer advice and training to small firms in such things as management, personnel practices, marketing, finance, and work practices, and a few even

provide nascent firms with low-cost space and administrative support. Although small-business assistance brings in little money, it apparently brings community colleges some new students and strengthens their base of political support. The effects on the client firms themselves are less clear, however.

Local economic planning. This is the newest and least-charted dimension of the colleges' new economic role. This new activity includes scanning the environment for economic, social, and political developments and passing this information on to employers, government agencies, and the public at large. Also many community colleges have joined local economic planning organizations and even convened meetings of local political and economic leaders to shape economic development policy. Finally, community colleges have even lobbied local, state, and federal government in favor of certain economic policies. Based largely on anecdotal evidence, this new role seems to help community colleges get more contract training requests and solidify their ties to local business and government agencies. However, it also carries the risk of ensnaring the colleges in local political conflicts.

Research and policy recommendations. Data on the impact of the new economic role on trainees, firms, and community colleges are relatively scarce. In particular, we need much more research on the impacts of community college efforts in the areas of small business assistance and local economic planning. Moreover, we should more closely investigate the impact of contract training on the colleges' commitment to transfer and remedial education and on businesses shouldering their proper share of the cost of employee training. On the policy side, as community colleges deepen their role in workforce preparation and economic development, public policies need to be devised to bolster the colleges' commitment to general education, baccalaureate preparation, and remedial education.

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I. INTRODUCTION

The economic role of community colleges has changed sharply over the last 20 years. For many years, the community college has been committed to occupational education, focusing on the pre-service and in-service education needs of students. But in the last two decades, many community colleges have broadened their economic development role to add a range of new activities in the area of workforce preparation and economic development: contract training; small business incubation and assistance; and local economic planning. These new economic programs of the community college promise to take the community college in a very new direction: from an institution focused on training students to one that is centered on meeting the needs of business and the economy.

This report analyzes this broadened role of the community college in workforce preparation and economic development: describing its main contours, explaining why and how it arose, and assessing its impact on students, firms, and community colleges. As part of this, we raise questions about the costs, as well as benefits, of the community college's new economic role. We draw on research conducted by the Community College Research Center at Teachers College, Columbia University, with funding from the Sloan Foundation.

The new programs that have expanded the community college's role in economic development are quite varied and hard to categorize. This taxonomic confusion is compounded by the fact that a host of frequently used but often ill-defined terms buzz around this discussion: for example, business incubation, technology transfer, and advanced technology centers. For simplicity's sake, we will classify the new economic development programs under three main headings:

- *Contract training:* improving the job skills and academic skills of current or prospective employees by providing training under contract to employers or to government agencies;

- *Small business development and incubation*: assisting existing or emerging small businesses to modernize their production technologies, improve their management and marketing, compete for federal funding, and secure facilities and administrative assistance at low cost;
- *Local economic planning*: working with local, regional, and state economic development agencies to create new firms, retain existing ones, and attract outside ones.

Research Questions

Four questions animate the research reported here.

- *Program provision*: What are the main types of contract training, small business assistance, and local economic planning that community colleges offer? For each of these, what is the content, method of delivery, structure of governance, and mode of finance?
- *Program origins*: What are the main reasons firms have utilized contract training and small business assistance from community colleges? What are the reasons community colleges have supplied these services? How have governments (local, state, and federal) and community college associations encouraged such utilization?
- *Variations in demand and supply of programs*: What variations are there between firms in their usage of the economic-development programs of community colleges? What variations are there between community colleges in their supply of economic-development programs? How do we explain these variations?
- *Program impacts*: What impact do these economic-development activities have on community colleges, students, and business firms?

Study Methodology

The analysis reported here is based both on national data on the general economic-development role of community colleges and on an analysis of its role vis-a-vis five different industries. This focus on specific industries is intended to correct the tendency of a general analysis to presume more homogeneity across industries than is really the case and to provide crucial contextual detail on how programs actually work. The five industries were chosen because they vary along a number of different dimensions: industrial sector (durable and non-durable goods production versus services), degree of technological intensity, and average firm size. The five industries are the following:

- *Auto manufacturing:* durable goods manufacturing, large average firm size, high technological intensity;
- *Apparel making*: non-durable goods manufacturing, small average firm size, low technological intensity;
- *Construction*: durable goods production, small average firm size, moderate technological intensity;
- *Banking*: services, medium average firm size, low technological intensity;
- *Auto repair*: services, small average firm size, medium technological intensity.

These characteristics are laid out in Table 1 below.

Table 1: Characteristics of Focal Industries

	Sic Code	Ave # of Employees in Establishment	Sector	% High Technology Employees*
Motor vehicle manufacturing	3710	174	Durable manufacturing	6%
Apparel and textiles	2300	38	Non-durable manufacturing	<1%
Construction	1500	8		1%
Depository banking	6000	20	Service	1%
Auto repair	7520	4	Service	0%

*High technology employment is defined in terms of employment of scientists and engineers.

Sources: U.S. Census Bureau (1998a).

For each industry, we studied at least four community colleges that had well-known programs servicing that industry. To the degree possible, we tried to have one community college in each of the following states with large populations and community college systems: New York, Florida, Texas, Michigan, and California. However, in the case of auto manufacturing and apparel, it was not possible to have community colleges in all four states, because these industries are regionally concentrated. All told, we studied over 20 colleges, visiting seven of them to view their contract training and small business development facilities. (For a list of the community colleges, see Appendix A.)

Information on the relationships between firms and community colleges in our five industries was drawn from interviews, site visits, and documentary analysis. Interviews were conducted with the following categories of people:

- *Academic and policy experts* on the economic-development role of the community college and on the training needs of our target industries. These experts were located at the American Association of Community Colleges, various universities (particularly those housing

industry centers sponsored by the Sloan Foundation), state and federal agencies, and so forth.

- *Officials employed by firms, industry associations, and labor unions* in our five focal industries;
- *Officials and faculty at community colleges*, both colleges running well-known programs for certain industries and colleges that did not run such programs despite the fact this would have seemed likely.

II. CONTRACT TRAINING

Introduction

Community colleges have been involved in providing job training almost from their inception (Brint & Karabel, 1989; Cohen & Brawer, 1996; Dougherty, 1994). But beginning in the South in the 1950s and then spreading nationwide in the 1970s, a new form of vocational training emerged (Bragg & Jacobs, 1991). Unlike traditional occupational education, contract training involves an outside party (such as a firm or government agency), rather than the individual student, as the primary client. From this simple fact flow all sorts of consequences.

Defining Contract Training

Synthesizing various definitions of contract training, we find it has seven key features, of which the most important is that it is based on a contract between a community college and an outside organization.[1] Table 2 lists these features.

Table 2: Defining Features of Contract Training

- an outside group (such as a firm, industry association, or government agency) contracts for specific programs or courses;
- the contractor is conceived of as the main client for the training; students are secondary clients;
- a community college receives payment from the contractor and/or public agencies providing third-party payments;
- the contractor largely, if not entirely, determines who will receive the contracted training;
- the contractor has a significant or even determinative voice in framing the content of the training;
- the contractor has a significant or even determinative voice in defining measures of success;
- the contracted programs or courses are almost always customized to the contractor's requirements in some fashion.

Contract education is often equated with customized education, but we need to be careful in how we conceptualize this. Although the content of contract

courses is often adapted to the concerns of a particular contractor (with learning tasks, problems, and terms being oriented to the concerns of the contractor) it is also often the case that the course content is not adapted. Instead, the course is simply pulled out of the regular college curriculum or pulled off a shelf of already developed contract courses (Lynch, Palmer, & Grubb, 1991, pp. 24, 27). But even if a program is not customized in content, it is customized in other ways: course schedule and structure (the course may not be semester long and may be offered in a nonstandard schedule such as only on weekends or only every other week); location (the training is delivered at the contractor's premises); or student composition (the students are exclusively ones referred by the contractor) (Grubb, Badway, Bell, Bragg, & Russman, 1997, pp. 4-5; Jacobs, 1992, p. 9).

Contract training is sometimes equated with training in firm-specific skills, but often this is not the case. Companies often contract for courses that offer skills that are industry-wide in usage or even entirely generic. This is particularly the case for basic academic skills. Such courses make up a significant portion of contract training—about 12 percent of all contract courses, according to one estimate (Lynch et al., 1991, p. 17)—because employers find that workers' ability to acquire more advanced job skills depends on the quality of their basic skills in reading, writing, and arithmetic. But this basic skills training is not firm specific, and usually there is little customization of course content (though there may be significant customization in scheduling, location, and student clientele) (Bakum, 1991; Lynch et al., 1991, p. 24; Palmer, 1990, pp. 9-10).

Even in the more technical skills, much of the training may not be very firm specific. Much training for advanced forms of work involving "lean manufacturing" or "just in time" production and continuous quality control involves the acquisition of skills in problem analysis, decision-making, communication, and teamwork that are not firm-specific (Bakum, 1991; Williams, 1997).

We should therefore be cautious in how we use the term "firm specific" for contract training. Although it is firm-specific in that a particular firm, industry association, or government agency contracts for the training and pays at least part of the cost, the training may not be restricted in its content or usefulness to that firm or industry alone. Students in contract courses may be learning general academic or even technical skills that could well be used outside the contracting firm or even its particular industry (Bakum, 1991; Brown, 1997).

The Extent of Contract Training

Three nationwide surveys of community colleges in 1989, 1992, and 1994 found that over 90 percent of community colleges are offering contract training to firms, nonprofit organizations, and government agencies (Doucette, 1993, p. 4; Johnson, 1995, pp. 88, 90, 100; Lynch et al., 1991, pp. 13-19).

Despite the current breadth of contract training, its depth is uneven. In most community colleges, contract-training efforts are not extensive. The 1989 and 1994 surveys found that the median number of students enrolled in contract training in two-year colleges offering such training was 919 and 1125 students, respectively, and the range ran from 3 or 10 students in the least involved college to 27,000 to 55,000 students in the most involved (Johnson, 1995; Lynch et al., 1991). These contract-training students constituted around 17 or 18 percent of total (credit and noncredit) headcount enrollments in the median two-year college offering contract training in fall 1993.[2] These figures are collected in Table 3 below.

Table 3: Extent of Contract Training

	Lynch et al. (1991)	Doucette (1993)	Johnson (1995)
Year of survey	fall 1989	fall 1992	fall 1993
Response rate	72%	69%	47%
Proportion of two-year colleges offering contract training	94%	96%	89%
Median enrollments in contract training	919		1125
Mean enrollments in contract training	1867		2733
Range of contract enrollments (lowest college; highest college)	10; 27,000		3; 55,000
Proportion of all two-year college students enrolled in contract training*			17-18%

* Estimate derived by us. See endnote 2 for method for deriving estimate.

The Main Forms of Contract Training

Typically, contract training is conceptualized as pertaining only to in-service retraining offered to people already working for an employer, with the training directed to upgrading their skills either to accommodate new technology or work processes or to allow workers to move into new jobs. However, in this report, we extend the notion of contract training to entry-level training if it exhibits the features typically associated with contract training. In fact, firms, government agencies, and occasionally unions routinely contract for training to prepare for entry into jobs and exert considerable influence over the content of the curriculum, the qualifications of instructors, the selection of students, and the time and place of instruction. Therefore, we distinguish between entry-level contract training, designed to prepare people for new jobs, and in-service contract training, designed to improve how employees do their present jobs.

For examples of contract training we draw on intensive case studies we

conducted of five industries: apparel making, auto manufacturing, auto repair, banking, and construction.

Entry-Level Training

Table 4 below lists various forms of corporate, union, and government sponsored contract training for entry-level jobs.

Table 4: Entry-Level Training: Different Forms

- preparation for semi-skilled jobs e.g., customer service representatives in banking; sewing machine operators in apparel making
- training for skilled jobs (e.g., tool and die makers, machinists, and electricians in auto manufacturing; carpenters and electricians in construction; and mechanics in auto repair).

Semi-skilled workers. Among our five industries, we found only scattered cases of contract-training programs to prepare workers for new semi-skilled, entry-level jobs. In construction, firms approach community colleges to train new workers, for example, in welding (Horton, 1997).

In the auto industry, on the rare occasions that a company opens a plant and staffs it with new workers rather than ones reassigned from other plants, the new workers have to be trained in the necessary machinery and production techniques. Though firms can do this training themselves, they may contract with a community college or other supplier to provide it (Demorris, 1997).

And in the case of banking, firms have contracted with community colleges to offer training in customer service and computer usage. For example, a bank expanding its operation in Texas hired a community college to train new workers to assist customers who wish to do their banking over the Internet (Wells, 1998).

Skilled workers. We found extensive contract training programs to prepare skilled workers in the auto manufacturing, auto repair, and construction industries. These programs prepare electricians and carpenters, as well as other

skilled workers such as auto mechanics and vehicle designers. The programs for skilled workers are much more elaborate than those for semi-skilled workers. The programs run longer, combine large amounts of classroom and on-the-job training, and in many cases are subject to federal and state regulation.

Skilled crafts-workers in the *auto manufacturing* industry are prepared through apprenticeships—registered with the U.S. Bureau of Apprenticeship Training[3]—that take at least four years, with over 7,000 hours of on-the-job training and 550 to 780 hours of related instruction in a community college. The related classroom instruction typically occurs after work, four hours a week spread over 2-4 days (Allard, 1998; Blum, 1998; Clemmons, 1998; Henry Ford Community College, 1998; Macomb Community College, 1998; McDougal, 1998; Mott Community College, 1998; Peterson, 1997; Saxton, 1998).

The auto industry also sponsors contract training for various non-apprenticed skilled jobs, including vehicle designers and non-apprenticed "employees in training" (EITs). The EIT programs do not involve as extensive schooling and the graduates do not receive journeyman status from either the UAW or the Department of Labor (Peterson, 1997; Demorris, 1997). The vehicle design programs prepare community college students to be "junior designers" at General Motors. Interestingly, Ford and Chrysler recruit their vehicle designers from baccalaureate programs only (Sommerstorfer, 1997).

Control of the apprenticeship and employee in training programs is triarchic. Employers and the United Auto Workers (UAW) dominate, but the community colleges do have a voice. The apprenticeship programs are run by joint management-union apprenticeship councils with equal membership from both sides, and the labor members play a key role in all decisions about curriculum definition, choice of providers, selection of trainees, and evaluation of programs. However, though they are junior partners, community colleges still have appreciable influence. Typically, they decide who will teach the related

training courses. And while employers and/or unions largely dictate the content of the training, they do listen to what community colleges have to say (Allard, 1998; Blum, 1998; Demorris, 1997; McDougal, 1998; Peterson, 1997).

The training of *auto repair* technicians in the programs sponsored by General Motors, Ford, Chrysler, and Toyota largely resembles the apprenticeship training of skilled crafts-workers in auto manufacturing and construction in having both on-the-job and classroom training (Brookdale Community College, 1997a, b; Chrysler Corporation, 1996; Ford Motor Company, 1997a; General Motors, 1997; Hudson Valley Community College, 1997).[4]

Control over the programs lies primarily with employers. They do not share control with unions because unions are largely absent in the auto repair industry. Although employers alone determine who enters the apprenticeship training, with regard to the content of instruction, their voice, while strong, is by no means peremptory. Community colleges taking part in the auto repair programs sponsored by GM and Ford have a considerable voice in determining precisely how specific training modules will be embedded in particular courses (Atwood, 1998; Cousteau, 1997).

The preparation of crafts-workers in *construction* combines classroom training and on-the-job training. Beyond that, entry-level contract training varies greatly according to the trade and to the sponsor. Programs tend to be much longer for electricians than for painters, for example (Somers, 1999). Meanwhile, community college programs that are industry sponsored tend to be shorter than those provided by union/management joint apprenticeship training committees (JATC's) (Duncan, 1999; Ray, 1997a).[5]

An unusual feature of apprenticeship training in construction is how little control the community colleges exert over the training (Duncan, 1999; Grindel, 1997; Henderson, 1997; Perry, 1997; Whooley, 1999). The community college does little more than provide space, a minimal degree of coordination, and a pass

through for state and federal funding.[6] It has very little control over the curriculum or the choice of instructors. The curriculum is developed either by the national union/management joint apprenticeship training committee in a given craft or, in the case of non-union training, by the National Center for Construction Education and Research, formerly the training arm of the Associated Builders and Contractors. For example, the education director for an ABC chapter in Florida described the apprenticeship program his chapter sponsored at a local community college:

> The community college does not go out and actively solicit instructors; we do that. They don't really do a heck of a lot in support other than the program coordinators ... They check attendance. They do a lot of the paperwork for the college ... grading sheets and report cards, things like that ... When we talk about what does the college do, the college doesn't really do a lot. They provide a facility and they provide coordinators and that's about it.

In-Service Retraining

The retraining of currently employed workers is the province of corporate and/or union sponsorship. The government may help underwrite such training but—unlike apprenticeship programs—it plays little role in specifying the content or schedule of in-service retraining. The main targets of in-service retraining are listed in Table 5 below.

Table 5: In-Service Retraining: Different Forms

- *Semi-skilled production workers:* retraining in using new equipment, human relations skills (communication, team work, problem solving), quality control, and basic academic skills;
- *Skilled workers:* same areas of retraining as for semi-skilled production workers, but with addition of "cross-trade" training, for example, of machinists in electrical work;
- *Managers and supervisors:* retraining in supervisory and human relations skills, using new equipment, and doing new tasks.

Semi-skilled workers. Auto manufacturing and, less so, banking and apparel making have made efforts to upgrade the skills of their semi-skilled production workers. In *auto manufacturing*, community colleges have trained production workers not only on the use of new machinery but also in new production techniques. Skill upgrading for new machinery takes place when plants are retooling for a new product launch or a major modification of a product, such as the introduction of a plastic rather than metal gas tank. Upgrading for new production techniques takes such forms as the introduction of lean-manufacturing and quality-control techniques involving work teams and group problem solving (Clemmons, 1998; Peterson, 1997).

In *banking* San Francisco City College was hired by a California bank to retrain keypunch operators, whose jobs were being phased out, in new skills in word processing and spread sheet use so they could bid for new jobs in the bank (Teng, 1999).

In the *apparel industry*, Garment 2000—a community college/ employer/ union program based at the City College of San Francisco—developed production courses specifically for garment firms to train workers in new work processes such as modular manufacturing and team-based sewing. Under these work systems work is not done in traditional assembly lines but in work units (Sasser-Watkins, 1998).

Skilled workers. The retraining of skilled workers clearly involves fostering the ability to use new equipment or technology. But particularly in the case of auto manufacturing, skill upgrading also involves developing the capacity to work in new ways (lean manufacturing and worker teamwork). For skilled crafts-workers, a particular wrinkle on lean manufacturing involves "cross-trade" training in which journeymen in one craft are taught the skills to do another craft, so that production cannot be delayed by the absence of a journey member from a particular craft (Clark, 1998).

Besides retraining skilled crafts-workers, community colleges have also been assisting the auto companies to retrain their engineers and technicians when the companies change over from one graphic design system to another. Auto manufacturers are pushing their suppliers to be able to work with those graphics design systems, which has led the suppliers to seek training from community colleges (Dueweke, 1998; Harrison, 1997; Saganski, 1997; Vandermark, 1997).

Managers and supervisors. Firms in the banking, apparel, and construction industries have also contracted with community colleges to train their managers and supervisors. Supervisors in *banking*, who often have been promoted from teller positions, need training in such things as lending (reading financial statements, assessing risk, etc.), accounting, and taxation (Laguna, 1998; Teng, 1999). And bank managers have needed training in computer skills, as the microelectronic revolution has swept banking (Wells, 1998).

And in *apparel*, San Francisco City College, through its Garment 2000 program, runs courses to train managers in supervisory skills, interpersonal relationships, quality control management, costing structures, and cross training for varied equipment (Sasser-Watkins, 1998).

Origins of Contract Training

As we have seen, most community colleges provide contract training.

Their customers are quite varied but the majority are business firms. A national survey of community colleges in 1989 found that 72 percent of contract training was provided for private companies or firms, 20 percent for government agencies (local, state, and federal), and 8 percent for nonprofit organizations (Lynch et al., 1991, p. 31).

How did contract training of corporate employees (current and prospective) become so common a feature of community colleges? It is tempting to see this as primarily a matter of powerful business demands, to which community colleges have simply acceded. But this "business command" or "instrumentalist" analysis has already been shown to fail to adequately explain the rise of the community college and its subsequent shift toward emphasizing occupational education (Brint & Karabel, 1989; Dougherty, 1994). Hence, we need to look elsewhere for a better explanation.

Drawing on structuralist theory in political sociology and on resource dependency theory in organizational sociology (Aldrich & Pfeffer, 1976; Alford & Friedland, 1975; Block, 1987; Skocpol, 1985), we argue that the most convincing explanation of the rise of contract training is one that—while acknowledging the powerful role of business demand—also notes the key role of community colleges and government bodies pursuing interests and values of their own. Like all organizations, community colleges and government bodies need to extract resources from their environment and this leads them to be active, modifying their environment as much as being modified by it. But we do not want to exaggerate the degree of autonomy community colleges and government bodies enjoy. They are still constrained—though not commanded—by business demands, values, and economic and political power.[7]

Business Demand for Contract Training

Contract training for business did arise in good part because business has

demanded this training from community colleges. Certainly, businesses have approached community colleges to ask for training (Choulochas, 1998; Dougherty, 1994; Heffner, 1997). Moreover, business firms and associations have played an important role in the formation of state policies to encourage contract training, especially by providing state aid. For example, in Massachusetts, business strongly supported the formation of the Bay State Skills Corporation, which funds contract training at community colleges and other institutions (Brint & Karabel, 1989, pp. 195-197; Ferguson & Ladd, 1988, pp. 57-60). In Illinois, the State Chamber of Commerce has eagerly encouraged state support of contract education, playing a major role for example in the genesis in 1977 of a pioneering program called High Impact Training Service (HITS) (Dougherty, 1994, p. 223). And in North Carolina, business played an important role in the formation of a "citizens' committee," North Carolinians for Community Colleges, that secured voter approval of a bond issue in 1992 to fund additional classroom space and technology to better support business needs (Brooks, Joss, & Newsome, 1997, p. 393).[8]

Why did businesses demand contract training from community colleges? To answer this question, we really need to answer three nested questions. First, why did firms seek more training to begin with? Then, why did they choose to contract out for training, rather than do it in-house? Finally, once the decision was made to contract out, why did firms choose community colleges rather than other outside providers of contract training? Because the answers to these questions are often quite similar across different types of training and different industries, we will answer in general, noting exceptions as we go along. However, we will later examine why it is that business demand for contract training is not uniform across firms varying in size and industry.

Increasing Need for Training

Two reasons stand out as to why firms have sought more training in the last two decades. First, increasing skill demands have required an upgrading of the training of both current and prospective workers. Second, a wave of retirements has hit the auto repair and construction industries particularly hard and has left a massive shortage of trained workers.

Increasing skill demands. Many industries have encountered increased skills demands on the part of current and prospective workers and consequently have demanded more training. In a 1995 nationwide survey of over 1000 business establishments with more than 50 employees by the U.S. Bureau of Labor Statistics, 65 percent of the establishments reported that the percentage of their employees receiving formal training had increased over the preceding three years (Frazis, Gittleman, Horrigan, & Joyce, 1997).

Driving this demand for increased training is the massive introduction of new machinery and new production procedures across a wide variety of industries. Particularly in manufacturing, many firms are moving toward "high performance" production involving fewer layers of hierarchy and a redefinition of production jobs so that they utilize a broader range of skills and involve more working in teams (Applebaum & Batt, 1994; Jacobs, 1987, 1992; Katsinas, 1994; Knox & Lorenzo, 1987; McAlinden, Smith, & Cole, 1995; Osterman, 1994). Consequently, they are increasingly interested in not just technical skills but also "soft skills" such as teamwork and group problem solving. The 1995 BLS survey of business establishments with more than 50 employees found that, after "occupational safety," the leading types of training are "computer procedures, programming, and software" (24 percent of the employees reported that they had received such training in the past year) and "communication, employee development, and quality training" (23 percent of employees) (Frazis et al., 1997).[9] A training executive at one of the Big Three U.S. auto-makers vividly

underscored how rapidly skill demands were rising:

> Years gone by, the shelf life, how long technology would be current, that would be about 10, 15 years. Today, I'm talking about February 1998, the shelf life of technology is right along 12 months, maybe 15 in certain applications. By the year 2000 it will be less than 12 months.

But this problem of increasing skill demands is not restricted to manufacturing. It also occurs in other sectors such as construction and services such as auto repair. Cars are now stuffed with microcomputers to reduce pollution by setting the right fuel/air mixture, increase traction by controlling the behavior of each wheel, and improve braking by operating the ABS brake system. This greater complexity of cars has made it necessary to upgrade the skills of the mechanics who would repair them (Choulochas, 1998).[10]

In construction, skill demands have risen under the impact of greater use of subcontracting, automated equipment, offsite fabrication of components, global construction projects, and government regulation of health, safety, and environment (Weidman, 1992, pp. 3-4).

Even while recognizing rising skill demands, it is important that we not exaggerate their extent. For example, the pursuit of high-performance production is largely restricted to manufacturing, which accounted for only 16 percent of jobs in 1997 (U.S. Census Bureau, 1998b). (And only a small percentage of manufacturing firms takes that approach.) Meanwhile, in much of the service sector, which dwarfs the manufacturing sector, the low-skill, low-wage employment approach is still very much alive (Bailey & Bernhardt, 1997).

Loss of current employees and scarcity of trained new ones. In auto manufacturing, construction, and auto repair, employers say that they have been losing many veteran workers but not getting enough trained replacements (Ehlers,

1997; McDougal, 1998; Mosser, 1997; Ray, 1997b; Tough, 1997). The loss of veterans is in good part due to the aging of the baby boom but it is also due to the increasing skill demands on current workers. In the auto repair industry, many older workers are choosing to retire (or are being retired) rather than undergo further training (Tough, 1997). Moreover, in construction, many veteran workers were laid off during the 1980s and never came back when the industry revived in recent years (Ehlers, 1997; Tornholm, 1998).

The causes of the drying up of traditional sources of supply are harder to pin down. One may be weakening interest on the part of students in traditional manual trades, as more and more people go to college. Though their evidence is anecdotal, industry officials and community college educators repeatedly told us that a major hindrance to attracting students to auto repair and construction was the poor public view of work in those industries (Ehlers, 1997; Lawson, 1998; Merwin, 1998; Ray, 1997b; Stilley, 1997; Yancey, 1998). For example, the training director of a large national construction firm stated:

> .... not a whole lot of young people [are] coming out of high schools [into construction]. Their image of the construction industry is the business end of a hand shovel, and it's not a very good image. They did a study not terribly long ago and looked at 250 different occupations. Believe it or not the typical construction craft-worker came out 249th on that list, just above migrant farm worker. So that tells us that the image that we have is just awful.

In addition, traditional training sources may be drying up. For example, car dealers are finding that they are getting fewer trained workers coming in from such longstanding sources as gas stations and other repair shops (Tough, 1997).

Increasing Desire to Contract Out for Training

Much of this employee training, particularly the in-service training, has been done in-house and could continue to be done so. But increasingly, employers have sought to contract out for this training (Antholis, 1998; Doucette, 1993; Frazis et al., 1997, p. 78; Grubb et al., 1997, p. 22).[11] The main reason has been cost. Many firms have decided it would be much cheaper to contract out for employee training than do it in-house (Choulochas, 1998; Heffner, 1997; Jones, 1997). One of the founders of the GM auto repair training program (ASEP) explained why his firm decided not to train auto mechanics through in-house service centers:

> We didn't have enough money to build a bunch of new training centers because, typically, that's what industry would do. That's what we did in the '50s ... We built at that time I think 25 General Motors training centers. Well, the question is, we didn't have the kind of dollars ... [at] four million a piece to run out and build those [in the late 1970s and early 1980s].

A second and more minor motive is that contracting out employee training, particularly if to colleges, can allow employees to receive academic credit. For some industries, particularly auto repair, this has been an attractive feature because it raises the status of the occupation.

The Appeal of Community Colleges as Training Vendors

Employers can choose among many possible outside vendors of training. In addition to community colleges, they have public and private postsecondary vocational schools, four-year colleges, equipment makers, consultants and training services, unions, and trade and professional associations (Frazis et al., 1997, p. 71). For most kinds of in-service contract training, community colleges'

competitors have historically dominated the training market. So what factors led employers to increase their use of community colleges?

Lower cost. A major factor is that community colleges are often cheaper than their competitors. When asked in a survey why they selected the community college to do workforce training, 68 percent of employers checked "cost effective value for money invested" (Zeiss & Associates, 1997).[12] An official of one of the leading construction industry associations stated the cost advantages of going to a community college:

> Many of our chapters across the country ... actually use the facilities and, sometimes, the instructors at the community college, to deliver craft training in the evenings or on weekends ... the community college very often assists some way in funding the salary of the instructor, and the chapter often enhances that a little bit to give them a little bit more money. And the chapter of course pays for whatever materials it consumes. And it pays a minimal, typically a very minimal, amount of money as rent for the lab or the shop area that they use in the evenings, to help cover the electric bill and the heat, and those kinds of things ... We have traditionally recommended to our members that, at the very least, they explore a relationship with the community college ... As a taxpayer, you are paying for that system just like everyone else, and that system has some resources, that as a taxpayer, are available to you that would help offset some of the other costs of instruction.

One reason why community colleges have been cheaper is because they receive state and local subsidy. Particularly since the late 1970s, many states have established grant programs that subsidize employee training at community

colleges and other public-training providers (Bragg & Jacobs, 1991; Melville & Chmura, 1991; Nespoli, 1991; Regional Technology Strategies, 1999; Wilson, 1981). Moreover, many overhead costs at community colleges are borne through state enrollment-based appropriations and local tax revenues.[13] This state and local aid allows community colleges to charge lower prices than they might otherwise, which often gives them an edge over private competitors. A contract-training official at a Texas community college noted:

> There is a national training school that has a facility near us and they're doing quite a bit of training. But their training is more expensive than what we would normally charge, because we are a community college and we receive both state funding and we have a local tax base, so we keep our prices down.

A community college official also notes that community colleges may be able to keep their prices low because they can hire trainers from the outside at a lower cost than their competitors. Because it gives them greater credibility or exposure to potential customers, trainers like being associated with a community college. Consequently, they are willing to take less money (Dalton, 1998).

Responsiveness. Employers pick community colleges in preference to four-year colleges partly because they have found community colleges generally more willing to accommodate employers' desires on what, when, and where to teach. Community colleges have been more willing to entertain the idea of significantly tailoring the curriculum to specific employer interests, to offer courses lasting less than a semester, to teach at non-traditional hours (such as evenings and weekends), and to offer courses at the employers' premises or through distance learning. For example, an executive of a U.S. car maker stated:

> They usually offer the kinds of things that we're looking for because they're also trying to meet their other customers’ needs in

> the area. They have students out there who need some technical training and they've done a fairly good job of pulsing their community and have put those kinds of courses in place that support business and industry in that particular area, usually because they're small, they have a lot less bureaucracy they've got to fight their way through.

A 1995 national survey of 2,473 firms that had contracted with 104 community colleges found that over half (55 percent) of the respondents checked that "community college customized training program for our needs" was a factor in their decision to choose the community college as a training provider (Zeiss & Associates, 1997, pp. 46, 113).[14]

This greater flexibility of the community college stems from the very way its mission has long been defined. Its "charter" from society—to use John Meyer's (1970) powerful term—is much more diffuse than that of four-year colleges. Most community colleges are defined as "comprehensive" institutions that are authorized—and even mandated—by their state governments to engage in economic development activities and provide occupational education as well as traditional collegiate courses (Dalton, 1998; Grindel, 1997; Horton, 1997; Owen, 1984; Pickar, 1998). Moreover, community colleges are chartered to "serve their communities." This provides an opening for virtually any service for which there is any demand—even if only a potential demand—by some significant segment of the community. This fluidity of function has led community colleges to be much more willing to service nontraditional clients and use innovative instructional modalities.

Four-year colleges, meanwhile, are defined by themselves and society in a more restrictive way that makes it harder to pursue contract education, particularly if it involves deviating from traditional teaching methods. A contract

training officer for a Texas community college pithily stated this contrast:

> By and large universities don't like to be associated with the concept of training. They prefer more ... the concept of "education," whereas at the community college level, the term "training" does not bother us particularly.... We're open to the whole concept in the first place. But the second thing is it's part of our charge. The legislature, the Texas Higher Ed Coordinating Board, all of these ... agencies to whom we have to report and whom we have to satisfy, have stated that that's a part of our mission.

More academic than vocational schools. Vocational schools (whether public or private) and non-school training providers are typically as—or even more—accommodating than community colleges. However, community college credentials are more prestigious than those of vocational schools or non-educational training providers and are more likely to be creditable toward a baccalaureate degree, something that has attracted a fair number of employers (Cantor, 1992; Choulochas, 1998; Light, 1998). One of the originators of General Motors' Automotive Service Education Program (ASEP) told us:

> We wanted it [ASEP] to get to a college degree, that's why we did not favor proprietary schools because you spend big money to get a piece of paper that may or may not have a great deal of value in the real world. We wanted these young people to have an opportunity to get an educational experience as well as a technical training experience, the result of which would be two things. One that we'd have a very well educated and competent technician. But at the same time we'd have someone who had the foundation for growth both within the dealers' organization and at the same time within the community.

More stability and probity than vocational schools. Community colleges also benefit from the perception that they are not fly-by-night operations; they are here to stay. On the other hand, proprietary schools—fairly or not—are seen as less stable and reliable (McDougal, 1998; Pickar, 1998). As a training executive for one of the major car makers put it,

> the regulation of some of those vocational colleges is ... I'm not sure it's as good as it could be. So I'd want to be very concerned that this vocational college that all of a sudden springs up and says, "I'm going to provide you this or that," that indeed they are. I guess I'm talking about reputation and track record. Do they really have the resources both from a teaching standpoint and from an equipment and facilities standpoint to give you good training?

Lower information cost than dealing with a myriad of training consultants. Community colleges also have an edge over private, non-school trainers. Many private training vendors are small, specialized consulting operations. As a result, a firm that relies on private vendors to meet a variety of training needs will have to piece together several different consultants in order to mount a comprehensive training program. A community college may be easier to deal with because it offers something close to one-stop shopping. Not only can it meet a wide variety of training needs with its own faculty but, in cases where it is unable, it can subcontract training to a private consultant (Antholis, 1998).

Better for older workers with weaker skills. Finally, some employers have picked community colleges over private training vendors for in-service training because—according to one of our respondents in the auto manufacturing industry—community colleges provide better instruction, especially for older workers with weak learning skills (Pope, 1998).

Community colleges market themselves to business. However great the

attractions of the community college, community college officials have long felt that business interest in them was not all that strong. According to these officials, their ability to develop contract training is hampered by a lack of knowledge on the part of employers about the training capabilities of community colleges (Bragg, Hamm, Lavista, & Lyon, 1991; Dalton, 1998; Doucette, 1993, p. 15; Zeiss & Associates, 1997, pp. 61, 79). In a national survey of community college workforce trainers, 23 percent agreed that "difficulty gaining visibility as a training provider" was a major obstacle for community colleges in providing contract training (Doucette, 1993, p. 15).

Though there is a certain "poor me" quality to this complaint, it contains a grain of truth. Employers have had a huge range of possible training vendors, so it has been hard for the community college to stand out. A national survey of firms that had contracted with community colleges found that, even among these firms, only 29 percent reported that they were very familiar with the various workforce development programs and services offered by their local community college (Zeiss & Associates, 1997, p. 45). One reason for this lack of knowledge is that—except in states such as California and Florida where the majority of public college students start at community college—many employers have not attended a community college. For this reason, community colleges have made a determined effort—both individually and through their state and national associations—to present themselves to business and to government as outstanding providers of contract training (American Association of Community Colleges, 1993; Doucette, 1993; Eskow, 1983; Garrison, 1985; National Council for Occupational Education, 1990; Parnell & Yarrington, 1982; Ramirez, 1989; Zeiss & Associates, 1997). For example, the president of the American Association of Community Colleges declared in 1989:

> AACC believes that immediate attention must be given to improve the United States' role in economic global competition ... We suggest that community colleges ... determine what they plan to do in cooperation with local industry to make manufacturing long-range competitive. Too often we have waited for an advisory committee or a local industry to establish goals. Now may be the time for community colleges to make the recommendations ... As a start, we suggest these initiatives: ... [that local community college leaders] actively sell the community college high tech role to state and private decision-makers. (Ponitz, 1989, p. 8)

Government Encouragement

The state and federal governments have strongly encouraged community colleges to pursue contract training, both through exhortation and financial incentives. Although this championing of contract training certainly has been motivated by business pressure and the evangelizing efforts of the community college associations, state and federal officials have also been led to support contract training on the basis of their own values and interests.

State Policy

State officials across the country have made it clear that they want community colleges to offer contract training (Dalton, 1998; Grindel, 1997; Katsinas & Lacey, 1990; Michigan Jobs Commission, 1998; Pickar, 1998; Roberts, 1993; Scott, 1987). Exhortation alone would spark community college action. But state governments have backed up their words with substantial financial incentives.

State aid for contract training began in the South in the late 1950s and early 1960s as a means to attract industry. By the late 1970s and early 1980s,

many states outside the South established such programs, but with the intent as much of retaining existing firms and fostering the birth of new ones as of attracting new firms to the state (Berglund & Coburn, 1995; Dougherty & Etzkowitz, 1996; Eisinger, 1988; Osborne, 1990).[15]

By 1998, 47 states had such programs (sometimes more than one per state) to aid workforce training. Across 43 of these state programs, community colleges received 33.6 percent of the training funds allocated in 1998 (Bosworth, 1999; Regional Technology Strategies, 1999). In fact, in Michigan, Mississippi, and Texas, the aid programs are required to funnel most or all of their training funds through the community colleges. For example, the Texas Skills Development Fund was set up to fund employment training solely at community colleges (Hall, 1998; Michigan Jobs Commission, 1998; Regional Technology Strategies, 1999).

A community college official illuminated the impact of this state aid on community colleges. When New York State repealed state aid for contract education in 1992, his college's contract training business plummeted:

> our business probably dropped down to about a third of what it had been.... Basically when we went from seventy five percent subsidy to zero subsidy, they [customers] looked at our prices and said, "... can't we find somebody cheaper?" ... Now we're back in the business but it's just that we're not a preferred provider.

Table 6 lists state programs that funnel ten percent or more of their workforce training funds to community colleges (Regional Technology Strategies, 1999).

Table 6: State Workforce Training Programs Where Community College Share is 10 Percent or Higher

State	*Program*	*Funding* (1998)	*Community College Share*
Arkansas	Customized Training Incentives	$1.6 million	30%
Colorado	Colorado FIRST Customized Job Training Program	$3.6 million	80%
Ibid.	Existing Industry Job Training Program	$2.1 million	80%
Connecticut	Customized Job Training Program	$3.5 million	19%
Idaho	Workforce Development Training Fund	$3.6 million	75%
Illinois	Prairie State 2000 Authority	$3.6 million	40%
Kansas	Industrial Training and Retraining	$3.3 million	20%
Ibid.	IMPACT	$5.2 million	25%
Kentucky	Bluegrass State Skills Corporation	$3.1 million	35%
Louisiana	Quick Start Training Program	$1 million	100%
Maryland	Partnership for Workforce Quality	$1.4 million	10%
Massachusetts	Employed Worker Collaborative	$1.5 million	40%
Michigan	Economic Development Job Training	$31 million	70% (required)
Minnesota	Minnesota Job Skills Partnership	$7.4 million	70%
Mississippi	Industrial Training Program	$5.5 million	100%
Missouri	DESE Customized Training Program	$5 million	50%
North Carolina	Focused Industrial Training	$3.7 million	100%
Ibid.	New and Expanding Industry Program	$10.1 million	Majority
Ibid.	Occupational Continuing Education	$10.5 million	100%
Ohio	Industrial Training Program	$9.9 million	15%
South Carolina	Special Schools	$7.9 million	Most
Texas	Skills Development Fund	$13 million	100% (required)
Washington	Washington State Job Skills Program	$0.6 million	75%
West Virginia	Governor's Workforce Program	$2 million	14%
Wisconsin	Customized Labor Training Program	$4.2 million	40%
Ibid.	Workforce Education Funding	$0.5 million	100%

Sources: Regional Technology Strategies (1999); Bosworth (1999).

Federal Policy

The federal role in encouraging contract training is less obvious than that of state government. It has not directly subsidized the training of current corporate employees, except in the case of workers losing jobs due to international trade competition.[16] However, through programs to train unemployed workers and to help welfare recipients move toward jobs, the federal government has played a major role in accustoming community colleges to providing contract training.

As early as the mid-1960s, some community colleges contracted to provide job training, placement, and counseling in connection with the Manpower Training and Development Act of 1962 and the various programs of the war on poverty (Reyes, 1977; Ruiz, Carreon, & Smith, 1987). These efforts accelerated during the 1970s with the advent of the Comprehensive and Employment Training Act (CETA) of 1973. By the mid-1970s, 89 percent of 519 community colleges responding to a national survey reported that they participated in CETA in some fashion (Olson, 1977).[17]

This early involvement with federal programs laid the groundwork for later contracting with business firms to provide training. To successfully compete for grants under CETA, colleges had to be willing to accommodate nontraditional students and to vary the contents, scheduling, and location of courses to suit the outside contractor (Ruiz et al., 1987). These dispositions would prove useful to community colleges in securing training contracts from business. In addition, in some states, such as California, Colorado, and Minnesota, CETA funds were used to fund contract training for businesses moving into a locality or expanding their labor force (Wilson, 1981, pp. 17, 26, 55, 59). These ties to business became even stronger with the arrival of the Joint Training Partnership Act of 1982 (JTPA). The new federal law mandated that private industry play a central role in guiding job training, through local Private Industry Councils (PICs) that would give out and monitor JTPA contracts. Community colleges came to have a lot of contact

with business, both through pursuing and executing training contracts and through membership on the PICs.[18]

To be sure, community colleges had long worked with employers who served on the advisory committees for the colleges' vocational education program. But the involvement with business through JTPA was much more "business like." The business members of a PIC were not advisors, but more masters, of the community colleges applying for a training contract.

Explaining Government Policymaking

Government encouragement of greater community college involvement in contract training has been driven in part by the demand of business for formal training. Over the last two decades, the business community has become increasingly vocal about what it perceives to be the poor quality of the graduates of the nation's educational and work training systems and has demanded a larger voice (Gelberg, 1997).

But business demand has not been the only impetus for governmental aid for workforce training. In fact, external pressures from all sources are by no means the determinants of government policymaking. We also have to keep in mind how often government action arises out of government officials' own values, interests, and perceptions. Government officials—especially governors and presidents—are aware that economic growth (typically) produces rising incomes and lower unemployment and thus a more contented electorate, which in turn means that elected officials have a better chance of reelection (Block, 1987; Dougherty, 1994).[19] And they believe that contract training in the community college is a very useful way of promoting that economic growth (Brint & Karabel, 1989; Dougherty, 1994; Osborne, 1990; Owen, 1984; Wilson, 1981).

At the same time we have to recognize that government officials are not entirely autonomous actors. Though they may pursue economic growth for their

own reasons, they do it within a constrained field of play. To secure that economic growth, government officials feel they have to provide business with inducements, such as state subsidized contract training, to enter or remain within a state (Dougherty, 1994).

The Values and Interests of Community Colleges

The fact that employers have demanded contract training over the last 20 years and that the state and federal governments have exhorted and subsidized such training does not mean that community colleges had to provide it. A host of other providers could have stepped into the breach. Yet most community colleges have provided at least some contract training. This suggests that it was not just outside pressure that led community colleges to pursue contract training. It was also a matter of inside interest. In fact, community colleges have had at least six reasons for offering contract training to business.

Service to the Community

One of the most powerful, but easily ignored, reasons community colleges have pursued contract training is a sincere belief that it meets the general interest, that it is a service to the community (Antholis, 1998; Blanzy, 1983; Horton, 1997). In fact, a national survey in 1983 on the subject of contract training found that 71 (26 percent) out of the 277 community colleges responding agreed that a benefit of providing such training was "the opportunity to fulfill the community college mission by meeting the training needs of the business community" (Deegan & Drisko, 1985). A contract training director for a Texas community college vividly expressed this value:

> All I can tell you is we're on a mission and we have to do these things. I mean we have to serve our community. They pay taxes into the college and they help pay our salaries. They help pay for

these buildings and I feel that we have ... to be available to train and to teach our community when we can.

This desire to meet the apparent needs of the economy has been particularly strong in areas suffering economically. In the South, it was natural for community colleges to dedicate themselves to what seemed to be the general interest of attracting more industry. And in the North, when the recession of the early 1980s hit the "Rust Belt" in the Northern Midwest, community colleges felt they owed it to their community to contribute to the revitalization of the economy by improving the skills of the workforce (Blanzy, 1983).

But this orientation to meeting the needs of the community is not simply an autonomous institutional value. It arises within the context of the dominance of business values within our national culture. Community colleges tend to define community in a way that makes employers central constituents of the "community." There is little consideration of the possibility that not infrequently the interests of the community and of employers might actually be opposed.

More Revenues

Particularly for community colleges hard hit by the deep recession of the early 1980s, restoring the economic vitality of their communities was more than just a service to the community. As resource-dependent organizations they would benefit greatly from economic revitalization. Contract training would help stimulate economic growth, which produces more revenues for community colleges and generates more employment opportunities for their graduates (Deegan & Drisko, 1985; Jacobs, 1992). Moreover, contract training would bring in new funds in the form of corporate fees, donations, and state aid.

In the early 1980s and early 1990s, community college revenues, particularly government appropriations, dropped sharply, largely as a consequence of recessions. Revenues per full-time enrollment (FTE) declined 13

percent (in constant 1996 dollars) between 1979 and 1983. They then rose fairly steadily until 1989 but then dropped 6 percent between 1989 and 1992. The decline was particularly sharp in government appropriations per FTE, which dropped 16 percent (in constant 1996 dollars) between 1979 and 1983 and 10 percent between 1989 and 1992 (U.S. National Center for Education Statistics, 1997, pp. 104, 313).

These revenue drops catalyzed a search by community colleges for new sources of income (Blanzy, 1983; Brightman, 1982; Dalton, 1998; Deegan & Drisko, 1985). For example, in Deegan and Drisko's 1983 national survey on contract training, 88 (32 percent) out of 277 responding community colleges stated that their involvement in contract training would bring increased revenue (Deegan & Drisko, 1985). As one of our respondents, a contract education administrator at a Texas community college, stated in 1998,

> I'm sure you will hear this from everyone around the country, that ... state money is becoming tighter and tighter ... [A]t least until this last legislative session, the proportion of money coming from the state was falling all the time ... so colleges are having to look for other ways of bringing in money and there's a big emphasis on continuing ed ... I don't think anybody would want us to be referred to as cash cows, but they are certainly looking to us to help bring in income to the colleges.

California's community colleges provide a particularly striking example of this search for new revenues. The passage of Proposition 13 in 1978, which put a low cap on local property taxes, badly hurt community colleges financially and pushed them to search for new sources of funding. Among 36 California community colleges responding to a survey in the early 1980s, 13 were operating or planning to operate for-profit ventures, including not only contract training but

also leasing out college facilities and even using their food services to open catering businesses (Brightman, 1982).

More Students

But it was not just government appropriations that have stagnated over the past two decades. So have degree-credit enrollments. After growing explosively in the 1960s and 1970s, degree-credit enrollments at public two-year colleges dropped 5 percent between 1981 and 1985, rose 22 percent between 1985 and 1992, and then fell 4 percent between 1992 and 1995 (U.S. National Center for Education Statistics, 1998).[20] These enrollment declines stimulated community colleges to pursue contract training and other new economic programs that would bring in both credit and noncredit enrollments (Deegan & Drisko, 1985; Grubb et al., 1997). For example, among 277 community colleges responding to a national survey in 1983 on the subject of contract training, 56 (20 percent) of the colleges stated that they believed that their involvement in contract training would bring increased enrollments in "regular" courses (Deegan & Drisko, 1985).

More Political Support

Beyond bringing more enrollments and revenues, community colleges have also hoped contract training would yield greater political support for the institution, which in turn might prove useful when fighting for higher state appropriations or local tax rates (Brand, 1997; Cousteau, 1997; Deegan & Drisko, 1985; Jacobs, 1992; Kent, 1991). Of the 277 community colleges responding to the Deegan and Drisko survey in 1983, 88 (32 percent) said that contract training would improve relationships with the business community and 56 (20 percent) said it would bring increased visibility resulting in greater community support (Deegan & Drisko, 1985).

Community colleges have long cultivated political support in order to

continue a stable flow of local tax revenues and state appropriations (Dougherty, 1994). This longstanding drive has grown in strength in the last 20 years, as revenues and enrollments stagnated and the performance of educational institutions was increasingly questioned. In order to protect their resource flows and legitimacy, community colleges have intensified their efforts to secure the support of political and economic elites. At the same time, these elites have made it clear that they wanted the community college to play a central role in workforce preparation (Dalton, 1998; Grindel, 1997; Katsinas & Lacey, 1990; Michigan Jobs Commission, 1998; Owen, 1984; Roberts, 1993; Scott, 1987). Community colleges have largely heeded this concomitant of greater state government and business political support (Clark, 1998). An official of a Michigan community college noted:

> It's political suicide not to be involved in it [state Jobs Commission grants program], even though we know it costs us money. It's a very visible program from the state and the [Michigan] Jobs Commission obviously tells the company, go to the community college of your choice and they'll be happy to do this for you. We really can't turn our backs on our local businesses.

Better Program Quality and Student Placement

Community colleges have been motivated to pursue contract training by the hope that it will keep their vocational programs up to date and improve their ability to place students in well-paying jobs. At a time of rapid economic change, community colleges have turned to contract training as a way to keep faculty and the curriculum up to date by exposing full-time faculty to developments in industry and by bringing businesspeople in as adjunct faculty (Brumbach & McGee, 1995; Deegan & Drisko, 1985; Grindel, 1997; Jacobs, 1987, 1992; Lynch

et al., 1991; Rand, 1989; Wood, 1997). In the Deegan and Drisko 1983 survey, 18 percent of the community colleges said one benefit of contract training was the opportunity to provide "real world" contact for community college faculty involved in preparing students for careers in business and industry (Deegan & Drisko, 1985). A dean of contract education at a California community college told us:

> One of the things we like about getting involved in the contract ed is that it forces those areas really to keep up with where the field is at ... When you're going out and designing specifically for the employers one of the things that begins to happen there is that your deans and department heads and faculty who are involved in designing those programs come to a much clearer and better understanding of exactly what it is that the employers are looking for and that begins to fall into patterns which itself then feeds back into the development of the regular curriculum of the college.

Moreover, by putting faculty in closer contact with business, community colleges have hoped that contract training would improve opportunities for placing students in good jobs (Deegan & Drisko, 1985; Grindel, 1997; Rand, 1989; Saganski, 1997; Yancey, 1997).

Exhortations by the Community College Associations

Community colleges have also been stimulated to provide contract training by the strong marketing efforts of their national and state associations. These associations have addressed their exhortations about the benefits of contract training as much to community college administrators and faculty as to business people and government officials (American Association of Community Colleges, 1993; Doucette, 1993; Eskow, 1983; Garrison, 1985; National Council for

Occupational Education, 1990; Parnell & Yarrington, 1982; Ramirez, 1989; Task Force on the Role of Community Colleges in Economic Development, 1988). Beyond exhortation, the American Association of Community Colleges and other national and state associations have provided community colleges with practical advice. The associations have issued how-to reports that describe what various community colleges are doing and identify exemplary practices that might be emulated (Esbeck, 1993; Falcone, 1994; Katsinas & Lacey, 1989; Katsinas, Bliss, & Short, 1995; Ryan, 1993). The AACC also has provided community colleges with technical assistance and small grants to establish pilot projects (Gollatscheck, 1988; McGuire, 1984). Moreover, the AACC sponsors conferences, such as the annual Workforce Development Institute, to bring together contract training practitioners. Finally, the AACC and NETWORK (a consortium of community colleges involved in contract training) have put together a computerized database of program descriptions that is accessible through the Internet. Community colleges interested in developing a program can determine if another college has done it and perhaps avoid much of the cost of developing the curriculum by purchasing it from the other college (Zeiss & Associates, 1997, pp. 19-25).

Variations in Employer Demand for Contract Training

Demand for contract training is quite uneven across firms differing in size and industry. Larger firms and firms in manufacturing and health care disproportionately draw on contract training. Conversely, small firms and those in wholesale and retail trade and, less so, construction are below average in their utilization of community colleges as contract training sources (Frazis et al., 1997, 1998; Zeiss & Associates, 1997, p. 41).[21]

Variations in Usage by Firm Size

Larger firms are more likely to contract with community colleges for training than are smaller firms. In a 1995 survey of 1062 establishments with more than 50 employees, the U.S. Bureau of Labor Statistics found that 57 percent of those with more than 500 employees contracted with community colleges for formal training in the past twelve months. The comparable percentages were 35 percent for establishments with 100-499 employees and 27 percent for establishments with 50-99 employees (Frazis et al., 1997).

In the BLS survey, these arrangements for formal training include not just contract training programs but also tuition reimbursement for employees taking regular classes.[22] There is a possibility, then, that these firm-size effects would not appear if we focused just on contract training. However, a study specifically of contract training found a similar pattern. In a survey of 2,473 businesses that contracted for training with 104 community colleges, the National Workforce Development Study (NWDS) found that 55 percent of those firms had over 100 employees (Zeiss & Associates, 1997, p. 41). Yet, less than two percent of all US firms have that many employees (U.S. Census Bureau, 1998b), indicating that large firms are over-represented among firms contracting with community colleges for training.[23]

Unfortunately, the BLS and NWDS studies do not analyze the causes of this variation by establishment size in demand for community college workforce training. However, pulling together various pieces of information, we would like to offer a possible explanation focusing on variations by firm size in demand for formal training of employees and in willingness to use community colleges for that formal training.

Demand for Formal Employee Training

The 1995 BLS Survey of Employer Provided Training found that larger

establishments provide their employees a significantly greater amount (in incidence and intensity) of formal training—defined as "training that is planned in advance and that has a structured format and defined curriculum"[24]—than do smaller firms (Frazis, et al., 1998). For example, establishments with 500 or more employees provided formal training to 71 percent of their employees over the course of the previous year, with the training averaging about 24 hours in toto. Meanwhile, establishments with 50 to 99 employees formally trained 61.6 percent of their employees, with the training averaging about 11.4 hours per year.[25] Interestingly, there is very little difference by establishment size in the extent or intensity of *informal* training (Frazis et al., 1998).

The tendency of large establishments to demand more formal training may be traced in turn to two other factors: greater ability to pay for formal training; and greater ability to bear the risk of losing trained employees.

Ability to pay. A national survey of community colleges in 1992 found that 25 percent of them identified the "inability of employers to afford training costs" as a major obstacle to the provision of contract training, with this obstacle hitting smaller firms particularly hard (Doucette, 1993, pp. 15, 17). Clearly, larger firms have more revenues with which to pay for training costs. But they also benefit from having lower average costs of training because they can spread their training overhead—the costs of designing a curriculum and securing a trainer, training site, and instructional materials—over a larger number of trainees (Frazis, Herz, & Horrigan, 1995, p. 12; Grindel, 1997). Also, larger firms have more slack to give employees time off to pursue training (Catonsville Community College, 1993; Zeiss & Associates, 1997).

In addition, larger firms are better able to leverage state subsidies. A study of state programs subsidizing employer-focused job training found that 39 percent of their funds went to establishments with more than 250 employees, which represent only 15 percent of all establishments (Regional Technology Strategies,

1999, p. 10; U.S. Census Bureau, 1998b, p. 549). Larger firms have an advantage in getting state subsidies because they are more aware of these subsidies and have superior intellectual and political resources to put together winning applications for state aid. Moreover, the state workforce aid programs often utilize funding criteria that advantage larger firms. Sometimes state programs explicitly take size of firm into account. But more often size is implicitly taken into account in the form of requirements which, for example, specify that training projects involve a certain minimum number of jobs (Regional Technology Strategies, 1999).[26]

Ability to bear the risk of losing trained employees. Larger firms are better able as well to bear the risk that trained employees—especially if trained in programs that are formally structured and thus have greater external currency—may become more attractive to outside firms and leave (Frazis et al., 1995, p. 12; Rosenfeld, 1999). Larger firms are better able to deal with this risk because they are less likely to lose employees (they can pay better) and, even if a recently trained employee leaves, they have a larger supply of co-workers to take their place.

Propensity to Use Community Colleges for Formal Training

Even if large and small firms were equal in their demand for formal training, they nonetheless appear different in their propensity to utilize community colleges for that training. From a number of our interviews, we get the impression that firm size seems to affect firm awareness and interest in using community colleges on the one hand and community college interest in offering to be of use on the other.

Firm awareness and interest. Larger firms appear to be more aware than smaller firms that community colleges are major providers of contract training (Williams, 1997). In addition, larger firms have more ready access to state subsidies for training and a significant portion of those subsidies are tied to use at

community colleges (Regional Technology Strategies, 1999). The seemingly greater awareness of community colleges on the part of larger firms is in part due to the fact that larger firms have more human resource staff to monitor what training is available outside the firm. Also, larger firms are more likely to have encountered community colleges in one or another guise and later think of them as contract training providers. But community colleges also play a major role in provoking the greater awareness and interest of larger firms.

Community college interest. Though community colleges do try to reach firms of all sizes, a number of our interviewees made it clear that larger firms are easier to approach than small businesses (Williams, 1997). As the economic development director of a Midwestern community college noted:

> When you're dealing with the small to mid-sized companies, a lot of them don't even know the community college is here, let alone that there're other support services through the college. Or if you mention that we're funded from a government agency, wow, they don't want anything to do with it, because they don't want the red-tape. It's an educational process, especially with the smaller and mid-sized companies. They're not always open to outside support and help ... It's tough working with that small to mid-sized company, but they're the ones who really need the help but they don't even know it.

Moreover, community college officials report that larger firms are easier to work with because they are better able to afford contract training, and one does not have to pull together several different firms in order to provide a big enough enrollment base for a training program (Armstrong, 1997; Grindel, 1997). A director of contract training for a California community college described the difficulty of working with smaller firms:

> If you're dealing with a smaller company one of the real problems is that trying to put together a class for them in terms of designing, et cetera, in terms of their needs. The costs are going to get pretty severe if you're only training three or four or five people, and so one of the things that we work at is putting together consortia of small businesses so that we can do a contract kind of education and training for the consortia that then makes it possible for the individual companies to afford it.

Variations in Usage by Industry

Business usage of contract training by community colleges varies markedly by industry. The 1995 BLS Survey of Employer Provided Training found that certain industries were much more likely to contract with community colleges: finance, insurance, and real estate (47 percent of establishments in that industry sector); and durable and non-durable manufacturing (47 percent and 41 percent, respectively). Meanwhile, other industries contracted with community colleges at a below average rate: construction (28 percent of establishments); transportation, communications, and public utilities (27 percent); wholesale trade (24 percent) and retail trade (9 percent) (Frazis et al., 1997, p. 71).

These findings are echoed by the National Workforce Development Survey of employers who are known to contract with 104 community colleges in 27 states. The same industries emerged as above average and below average users of the contract training services of the community college (Zeiss & Associates, 1997, p. 41). However, the latter survey does turn up one heavy user of contract training that is not discussed by the BLS survey: the health care industry.

Underlying this industrial variation in utilization of community college contract training are the same two factors that explained the size differences: differences in demand for formal training and in propensity to use community

colleges to deliver that formal training.

Industry Variation in Demand for Formal Training

Industries differ greatly in how much formal training they demand. The 1995 BLS Survey of Employer Provided Training by establishments with 50 or more employees found that the industries that tend to draw a lot on the community college for training are also the ones that demand a lot of formal training generally. As Table 7 below shows, the industries that demand a lot of formal training—as measured by the percentage of employees receiving training in the past 12 months and the number of hours of training received over six months—are mining, manufacturing (durable and non-durable), finance, insurance, and real estate (FIRE), and transportation and public utilities. And as we have seen above, FIRE and durable and non-durable manufacturing are also industries that are above average in utilizing community colleges. Meanwhile, the industries with below average demand for formal training are also the same ones with below average use of the community college for training: construction, retail trade, and wholesale trade (Frazis et al., 1998, p. 6).

In fact, the association between an industry's demand for formal training and its utilization of the community college is quite high. When we calculate the correlation between the percentage of establishments in a given industry that utilize the community college and various measures of extensiveness and intensity of demand for formal training, the Pearson correlations run between 0.56 and 0.76, as can be seen in Table 8 below.

Table 7: Variations in Formal and Informal Training across Industries

Industry	*Establishments providing formal training in last 12 months.*	*Number of employees receiving formal training in last 12 months*	*Hours of formal training, May to October* (employer survey)	*Hours of formal training, May to October* (employee survey)	*Hours of informal training, May to October* (employee survey)
All industries	92.5%	69.8%	10.7	13.4	31.1
Mining	96.7%	94.7%	14.4	17.2	18.9
Construction	94.7%	71.2%	5.0	11.4	36.1
Manufacturing: durable goods	88.1%	78.3%	11.7	20.8	30.3
Manufacturing: nondurable goods	95.2%	85.4%	11.9	21.7	18.5
Transportation, communication, public utilities	96.5%	81.4%	18.3	17.6	19.7
Trade: wholesale	98.4%	68.1%	8.4	8.3	25.4
Trade: retail	88.7%	48.8%	3.7	4.2	32.6
Finance, insurance, real estate	95.6%	87.4%	16.6	15.9	34.7
Services	93.5%	70.7%	11.0	13.2	37.0

Source: Frazis et al. (1998).

Table 8: Correlations Between Measures of Demand for Formal Training in an Industry and Its Utilization of Community Colleges

Measures of Demand for Formal Training in Given Industry	*Correlation with Measure of Utilization of Community Colleges* (% of establishments in industry using community colleges for employee training)
Percentage of employees in industry receiving formal training in past 12 months	0.62
Average hours of formal training received by employees in industry between May and October, 1995 (employer report)	0.56
Average hours of formal training received by employees in industry between May and October, 1995 (employee report)	0.76

Note: calculated from Frazis et al. (1997, 1998).

But why do industries vary in their demand for formal training of their employees? Two factors come to mind. One is variation across industries in their average firm size. Another is inter-industry disparity in their ability to leverage state subsidies for employee training.

Average firm size. Part of the reason that the construction industry demands less formal training is that it is more heavily populated by smaller firms than are other industries and, as discussed above, smaller firms demand less formal training than do large firms and are less likely to utilize the community college. For example, the average size of firms in construction is only 8 as versus 16 for finance, insurance, and real estate and 56 for manufacturing (U.S. Census Bureau, 1998b, p. 548).

Industrial targeting of state aid for workforce training. States also target workforce-training funds to certain industries. A 1999 study of state funding for employer-focused job training found that 28 states target aid to specific industries—70 percent of total funding goes to manufacturing firms (Regional

Technology Strategies, 1999). This industrial targeting often involves naming specific industries such as biotechnology or naming the manufacturing sector in general (Regional Technology Strategies, 1999).[27] But the targeting also occurs through the use of general criteria—such as that the industry must produce many high-wage jobs, have growth potential, be technologically intensive, export oriented, new to the state, or likely to leave the state—that do not designate specific industries but tend to favor manufacturing and disqualify others such as construction and retail trade (Regional Technology Strategies, 1999; Tornholm, 1998). The director of a Midwestern state program funding community college contract training described how it was targeted:

> Apparel would not be eligible. Banking would not be eligible. We're trying to focus on base economy. We're looking at manufacturing world headquarters, research and development. The apparel industry in [our state] is almost all retail. Banking is what we would call service sector kinds of things ... There's just a huge amount of manufacturing going on in [our state] and that does bring in dollars to our base economy and we are limited in the dollars we have available and our demand for grants is more than twice as much as the money we have available. So as we try to focus on where you get the biggest bang with multipliers for your dollars it tends to be primarily manufacturing.

As the statement indicates, an industry's ability to leverage public subsidies is a product in good part of state government's assessment of the industry's importance to the community, especially its tax base. In addition, states tend to be much less generous to industries that are place-bound and thus cannot easily leave the state: most notably, retail trade. And of course, simple political power—which is often hard to distinguish from economic importance—also plays

a role in securing large state subsidies for a particular industry.

Industry Variation in Propensity to Use Community Colleges

Even if industries were similar in their demand for formal workforce training, this would not dictate that they would be equally likely to use community colleges to provide that training. As we have seen, the Pearson correlation between an industry's demand for formal training and its utilization of community colleges for that formal training is high—ranging between 0.56 and 0.76 depending on the measure of formal training demand—but by no means perfect. Other factors are at work. One is that community colleges are not equally willing to supply all industries. Another is that, even if willing, community colleges are only one of many sources of formal training an industry can use. Finally, many state programs to subsidize job training encourage use of community colleges by earmarking some or all of their funds for use at community colleges.

Community college interest. Community colleges vary greatly in how willing they are to supply contract training. And even when they do provide it, they are not necessarily interested in all employers. Hence, a factor behind the relatively low usage of community colleges by the construction industry may be that the community colleges are less interested in supplying that industry with training. Human resources officials in construction firms frequently complain that community colleges are insufficiently interested in providing them with training (Ehlers, 1997; Ray, 1997). The extent of such unresponsiveness is not clear and may well be exaggerated by industry sources. However, it is noteworthy that the construction industry has made a major effort to expand an alternative training supplier—courses offered by the contractors' associations using curricula developed by the industry-supported National Center for Construction Education and Research (Ehlers, 1997; Heffner, 1997; Ray, 1997).

Alternative suppliers of training. Even if community colleges are willing to supply an industry with training, that industry's utilization of the community college may still be relatively low if it has a full array of alternative suppliers. In general, industries can draw not just on community colleges but also on their own training staffs, postsecondary vocational schools (public and private), private consultants, equipment vendors, trade and professional associations, and labor/management joint apprenticeship programs (Frazis et al., 1997; Jacobs, 1992). The construction industry's relatively low usage of community colleges may be attributable in part to the fact that the industry has well-developed alternative sources of training. Besides community colleges, construction firms also have available joint labor/management apprenticeship programs and training programs run by industry associations. In the 1995 BLS survey of employee training, 58 percent of construction establishments utilized training provided by union, trade, and professional organizations, more than double the average for all industries (24 percent) (Frazis et al., 1997, p. 71).

Though the craft unions are no longer as strong as before, they still run extensive joint training programs in conjunction with the firms they have organized (which band together in industry associations of union-organized firms). These union/management programs—which offer apprenticeship and in-service training—often are quite large and structured, with formal curricula and their own training facilities and specialized instructors (Lawson, 1998; Sillars, 1999; Somers, 1999).[28] For example, the training director of a carpentry joint apprenticeship training committee in Texas stated:

> We have commercially purchased textbooks. We have instructors that lecture. Our program in and of itself is about 60 percent classroom lecture and written paperwork, test type situations just like a college would be, and it's just as tough as a college ... we've

got a very disciplined program that requires just as much as a college.

Consequently, the main customers in the construction industry for contract apprenticeship training and retraining by community colleges are not joint apprenticeship programs but rather non-unionized employers (Grindel, 1997; Heffner, 1998; Horton, 1998; Tesinsky, 1997).[29]

In addition to the joint union/management apprenticeship committees, contractors associations are also major providers of training. For example, large chapters of the Associated General Contractors sometimes have their own training facilities where they train foremen and other supervisors and provide safety training for all employees (Heffner, 1998).

In contrast to construction, the finance, insurance, and real estate (FIRE) sector is a heavy user of community colleges, with 47 percent of establishments paying community colleges to provide employee training, well above the 31 percent average for establishments in all industries (Frazis et al., 1997).[30] However, this figure could well have been much higher if the financial sector were not to have ready access to training provided by trade and professional organizations. Over a third (37 percent) of finance, insurance, and real estate (FIRE) establishments contract with "trade, professional, or union organizations" (really only the first two), well above the 24 percent average for establishments in all industries (Frazis et al., 1997, p. 71). For example, the banking industry draws heavily on the American Institute of Banking (AIB), which offers courses—addressed both to bank managers and lower-level employees—that cover all facets of banking (American Institute of Banking, 1998). Though regional AIB chapters do work with community colleges on occasion (Laguna, 1998), they also directly compete with them (Owen, 1998). For example, a regional director for the American Institute of Banking in the Northeast described some of his contract

education offerings, which were done entirely apart from the community colleges:

> One of the larger banks in [our state] [came] to me yesterday ... saying ... would I be able to put their [writing] program together for them, and this would be offered across the state with my instructors ... So we do in-house training quite often. I've done proposals for computer training for two different banks in this state that I'm waiting to hear back on.

State workforce training aid focused on community colleges. As discussed above, the state programs aiding workforce training tend to favor certain industries over others as recipients of this aid. In addition, these state aid programs frequently encourage the use of community colleges as training providers. The interaction of these two factors pushes certain industries more than others toward using community colleges for workforce training.

Variations in Community College Supply of Contract Training

Although the majority of community colleges now provide contract training, the magnitude of supply is very uneven across the colleges. While two national surveys in 1989 and 1994 found that the median number of students enrolled in contract training was 919 in one study and 1125 in another, enrollments ranged between lows of 3 or 10 and highs of 27,000 or 55,000 (Johnson, 1995, p. 100; Lynch et al., 1991, p. 17).

Why do community colleges vary so much in the size of their contract training programs? Four factors stand out: the volume of employer demand; the degree of administrative interest; the funding available to develop curricula, equip training facilities, and staff courses; and the availability of faculty and staff of sufficient ability and number.

Employer Demand

Clearly, the size of a community college's contract training program will vary with the volume of local demand by employers. This in turn will depend on the number and size of local employers, the magnitude of their training needs, their ability to pay, their awareness of the community college, and the availability of alternative training suppliers to the community college (Bragg, 1990, p. 17). Several of these factors have already been reviewed above so we will focus just on the number and size of local employers.

Typically, rural community colleges have fewer employers (though some of those employers can be large as in the case of branch plants in the rural South) and consequently smaller contract training programs. A 1989 national survey of community colleges found that the median urban community college offered twice as many courses and serviced 48 percent more employers than did the median rural college, with suburban community colleges falling in between (Lynch et al., 1991, Tables A1 and A2). To be sure, an urban community college typically confronts more competing suppliers. Still, that college will usually encounter more employers who might demand contract training.

Administrative Interest

Even if a community college has a high volume of employer demand, it may be led by administrators who are not greatly interested in pursuing economic development (Doucette, 1993, p. 15; Grubb et al., 1997, pp. 19-20; Harrison, 1997; Johnson, 1995, pp. 138, 159-161; Tornholm, 1998; Williams, 1997). Presidents and other administrators can make or break a community college's contract training program according to their capacity to educate internal and external constituencies about contract training, remove structural and policy barriers (often based on traditional academic practices), and provide the funds necessary to market the program and develop new courses (Bragg et al., 1991, p.

135; Johnson, 1995, p. 138; Zeiss & Associates, 1997, pp. 61-66). For example, the development of an advanced technology center at Rock Valley Community College (Rockford, IL) in the mid-1980s has been attributed to the strong interest of the president, who conceived the idea, rounded up business support, and got a bond issue passed to pay for the center (Jacobs, 1995; Williams, 1997). And in the case of Columbus (OH) State Community College, the active support of the president allowed the contract training director to, in his words, "request special procedures from other college departments (admissions, registrar's office, personnel, business office, data processing) to accommodate the non-traditional flow of registration, fee collection, and hiring instructors required for corporate training" (quoted in Johnson, 1995, pp. 160-161).

Administrative interest may be absent or only weakly present because a president may view contract training as unnecessary or as a distraction from more fundamental missions such as college access or transfer preparation (Armstrong, 1997; Irwin, 1998; McNeil, 1998).[31] For example, the head of the in-service training program for auto mechanics for one of the Big Three auto firms stated:

> In some areas we get better cooperation than in others. It ends up being a people-related issue, whether whoever is in charge sees this as a benefit or what they're interested in ... Sometimes the school administration, depends on what tone they set—if they want to be a liberal arts organization and downplay the technical programs or want to be a very technical organization and they bring a lot of emphasis to those areas.

Sometimes the lack of administrative support stems from a fear of faculty opposition to overly applied training and too much entanglement with business. For example, in a 1992 survey of workforce training directors at community colleges, 13 percent rated faculty opposition or lack of support for contract

training as a major problem (Doucette, 1993, p. 15).

Finally, weak administrative support for contract training can simply be due more to inattention than disinterest or opposition. We found this in the case of a community college located in a major metropolitan area. Despite the wealth of contract training opportunities available, its contract training operation was neither large nor well organized. The main explanation seemed to be a lack of administrative leadership, due to the highly politicized nature of education policy in that city, which has resulted in high turnover among top administrators.

Funding

A major complaint of contract training officers is that they do not have enough funds to properly operate their units (Bragg, 1990, pp. 17-18; Doucette, 1993, pp. 15. 22; Zeiss et al., 1997, pp. 61, 78). A 1992 national survey of workforce training directors at community colleges found that 35 percent agreed that "inadequate operating budget of training unit" was a major obstacle. They felt that their budgets were insufficient to develop the right curricula, properly equip their training facilities, and hire enough outside experts to teach specialized courses that the regular faculty cannot cover (Doucette, 1993, pp. 15, 22).

Human Resources

In a 1992 national survey, 22 percent of workforce-training directors at community colleges agreed that "lack of experienced trainers or expertise" was a major obstacle to providing workforce training (Doucette, 1993, p. 15).[32] Effective contract training programs also need staffers able to market the program to business, quickly develop courses responsive to business demands, and manage them in a way business finds acceptable (Johnson, 1995, pp. 132, 139-141, 149, 161, 170; Zeiss et al., 1997, pp. 67-68). For example, in a national survey of community colleges engaged in contract training, a major explanation given by

contract trainers for why certain community colleges are seen as leaders in contract training is that they have "a quality staff, with appropriate skills for marketing contract training" or they "operat[e] the unit as a business, with specialists like grant writers on staff to help finance the entire operation" (quoted in Johnson, 1995, pp. 139-140).

Faculty schedules often play an important role in difficulties in attracting enough good faculty (Bragg et al., 1991, p. 137; Grubb et al., 1997, p. 20). A survey of heads of Illinois community colleges in 1990 found that they ranked "difficulty of arranging personnel assignments" fourth (with half the colleges citing it) among a list of obstacles to colleges' engaging in economic development activities (Bragg et al., 1991).[33] College customs or union rules governing appropriate course loads and teaching schedules can make it hard to staff economic development activities with full-time faculty. Contract training courses do not fit within regular departmental course requirements and often require nontraditional scheduling, such as durations other than a semester and off-campus instruction (Jacobs, 1997; Tornholm, 1998).

In addition to scheduling difficulties, faculty may be unavailable due to lack of interest in or support for contract training. Sometimes this opposition stems from a faculty view that contract training is improper, an intrusion of business training into an educational institution. Often, faculty who are accustomed to traditional academic courses are unwilling to teach courses at nontraditional hours and places (Horton, 1997; Jacobs, 1997). Moreover, contract training may require faculty to learn new skills and knowledge and change the ways they teach, and many faculty are unwilling to do so (Ashley, 1997; Choulochas, 1998; Tornholm, 1998). A Michigan state official who deals with community colleges noted these obstacles:

> Learning is learning but it's a little scary to get up in front of adults who know the business instead of getting up in front of children, young people. They ask tougher questions, they're more difficult to schedule, it's a little bit more demanding. And the business and industry folks do have very definite demands on what they want as far as the most current technology and the best training techniques. And to satisfy them you've got to have some folks who are really service oriented and are willing to work hard. And it takes going against some of the regular academic values and you've got to be willing to change. You've got to be willing to work nights and weekends.

Beyond refusing to teach courses, faculty members have also hindered the development of contract training programs by sometimes refusing to give credit status when it is requested for contract education courses. They feel that the courses are not college grade (Armstrong, 1998; Brand, 1997). Moreover, faculty members occasionally have become rivals of community college programs, starting consulting businesses in competition with their own colleges (Bragg, 1990; Jacobs, 1997).

Because of the difficulties in using their own faculty, community colleges often go outside the community college to secure contract trainers. But a good external supply of trainers is not always available. Capable trainers may be in short supply or competing themselves with community colleges in offering services to business clients.

The Impact of Contract Training

Impact on Trainees

Rigorous studies of the impact of contract training on trainees are quite

scarce. Hence, any conclusions have to be treated as tentative. To keep things clear, we distinguish between studies of entry-level and in-service training. The data on entry-level contract training programs show positive effects on graduation rates, placement rates, and incomes. The data on in-service training show a beneficial impact on wages and, much more tentatively, job upgrading.

Entry-Level Contract Training

A careful study by Lynch (1992) of employee training, using the National Longitudinal Survey of Youth (NLSY), finds that apprenticeship training had a significant positive effect on wages among young, non-college-educated workers who had completed all their schooling by 1980. Those who had received training before going to work with their present employer—either in the form of apprenticeship or training at a private or public vocational school—had significantly higher wages in 1983 than those without any job-related training, even with controls for sex, race, marital status, schooling, job tenure and experience, and local labor market characteristics (Lynch, 1992, pp. 307-308).[34]

We do have evidence specific to contract training apprenticeships, but it is largely anecdotal. Those running auto repair programs at community colleges told us that students in the apprenticeship programs sponsored by the auto manufacturers fared considerably better than students in generic programs that had no such corporate connection. For one, the graduation rates were higher. The Ford Motor Corporation estimates that on average 75 percent of students enrolled in its auto repair apprenticeship program graduate (Ford Motor Company, 1997b). This figure was echoed by the head of the auto repair program at Broward Community College (Hollywood, Florida), who estimated that 18 out of 23 entrants (78 percent) to his Ford auto program are graduating with their associate's degree (Derry, 1997).

Moreover, auto tech coordinators informed us that apprenticeship

programs have better placement records. According to the coordinators at Hudson Valley (Troy, NY) and San Jacinto (Pasadena, TX) Community Colleges, auto-repair graduates are universally placed in jobs with auto dealers, in good part because they can enter the program only if they are sponsored by a dealer to begin with. At Hudson Valley, this is a sharp improvement from the placement rate for students in the generic program: 83 percent (Ashley, 1997; Yancey, 1998).

The auto repair apprenticeship programs also seem to yield decent salaries. According to program heads at Broward (Florida) and San Jacinto (Texas) community colleges, graduates started at between $17,000 and $30,000, (Derry, 1997; Yancey, 1998). And they predict that, three years out, the graduates will be making between $30,000 and $60,000, according to the coordinators at Hudson Valley and San Jacinto (Ashley, 1997; Yancey, 1998).

In-Service Training

We also have some tentative evidence that in-service contract training has a positive impact on its recipients. Krueger and Rouse (1996) studied a contract-training program in New Jersey involving one community college and two companies (a durable good manufacturer and a service company) in which employees were trained mostly in basic academic skills (reading, writing, math, and English as a Second Language). Comparing those who underwent training to those who did not, Krueger and Rouse found that the training had a positive and statistically significant effect on wages (at one firm) and a positive, but statistically insignificant, effect on job upgrading (Krueger & Rouse, 1996).

These findings are buttressed by ones from other studies of in-service job training, but not of contract training specifically. Several studies—using the Employment Opportunities Pilot Project Survey of Firms (EOPP), the National Longitudinal Survey of Youth (NLSY), and company-specific data—have found that, controlled for a variety of employee and labor market characteristics, on-the-

job training has a positive and significant impact on wages (Baron, Black, & Loewenstein, 1989; Bartel, 1995; Bishop, 1990; Holzer, 1990; Holzer, Block, Cheatham, & Knott, 1993; Lillard & Tan, 1992; Lynch, 1992; Mincer, 1991).

Impact on Employers

Hard data on the impact of contract training on employers are no more plentiful than data on the impact on training recipients. Because data on the effects of entry-level contract training seem to be unavailable, we go directly to in-service training.

In-Service Retraining

Data on in-service training exist, though they are scarce. Typically, the studies concentrate on such indirect and soft measures as client satisfaction and repeat business (Brand, 1997; Grubb et al., 1997; Winter & Fadale, 1990). However, a number of studies provide more direct measures of the impact of in-service training on labor turnover and job performance.

We have one study of the impact of in-service contract retraining on employee performance. Krueger and Rouse (1996) also studied the impact of contract training on job turnover and job performance at their two New Jersey firms. They found that trainees less often left the company, had more job upgrades, were more often nominated for and received individual or group performance awards, and believed their supervisor would say they were doing a better job than a year ago. However, only the second and fourth results were statistically significant. These findings are buttressed by studies dealing with in-service training in general, rather than contract training specifically. Using a variety of data sets—national longitudinal surveys of youth, surveys of employers, and single-company studies—several studies find that on-the-job training has a positive and significant impact on measures of employee

performance, such as job performance ratings (Barron et al., 1989; Bartel, 1995; Bishop, 1990; Holzer, 1990; Holzer et al., 1993).

One interesting impact of contract training is that it apparently substitutes for in-house training by employers themselves. To be sure, state programs to subsidize employee training often require firms to put up as much as half the cost of the training in order to receive grants (Bosworth, 1999). And an evaluation of New Jersey's state aid program found that firms receiving grants stated that they planned to contribute $2 for every dollar they received in state aid (Van Horn, Fichtner, Dautrich, Hartley, & Hebbar, 1998, p. 11). Still, a survey by the Office of Community Colleges of the State University of New York of 169 employers who had contracted with New York State community colleges for training found that only 33 percent said that no training would have occurred in the absence of the state-subsidized training. Another 34 percent said they would have trained with their own staff, 26 percent stated they would have purchased training elsewhere, and 7 percent gave other answers (Winter & Fadale, 1990, p. 5). This substitution effect raises nettlesome questions about whether publicly subsidized contract training allows firms to unnecessarily and improperly offload some of their training expenses onto the public purse.

Impact on Community Colleges

Contract training has wide-ranging and subtle impacts on community colleges. It boosts enrollments and revenues. It enlarges business's external support for, and internal involvement, in the community college. It changes the content of vocational courses and the liberal arts courses servicing them. It raises the standing of continuing education faculty but also brings them into conflict with traditional vocational faculty. More speculatively, there is some evidence that the deepening involvement of community colleges in contract training erodes their commitment to traditional liberal arts values, transfer education, and

remedial education.

Enrollments

Many community college observers have mentioned that contract training has brought the colleges more students. But these observers usually acknowledge as well that this conclusion is not based on firm fact (Armstrong, 1997; Bakum, 1991; Bragg & Jacobs, 1991; Brand, 1997; Clark, 1998; Grubb et al., 1997).

As discussed earlier, the median number of students enrolled in contract training at community colleges offering such training is around 1125, constituting an estimated 17 or 18 percent of total (credit and noncredit) enrollments.[35] It is safe to say that many of these students are a net addition to community college enrollments, because most of them are not students who elected contract training after entering the community college. In fact, many of them are employed workers who come to the community college at the behest of their employers.

But this figure may underestimate the true enrollment impact of contract training. Students who come to take contract courses on narrowly technical subjects not infrequently decide to get an associate's degree as well, so they take additional general education courses. Moreover, contract students may return to the community college later on their own, having found college education to their taste (Armstrong, 1998; Clark, 1998). A contract education manager at a New York community college notes:

> I would guess about half of them [contract training students] would not naturally have any contact at all with the college otherwise. Probably about half of them have had or might have; a lot of our retraining people in fact are alumni of [the college] ... We know from just anecdotal experience and a certain amount of nose counting that when we do a contract training, probably pretty

> reliably about one-eighth of the trainees end up taking further training at the college within a year.

Revenues

Contract education certainly brings in new money, whether in the form of employer payments or government aid. But these new revenues do not seem very impressive. For example, median contract training revenues among two-year colleges offering such training in 1993-94 totaled only $160,000, amounting to about one percent of the median operating budgets of those colleges (Johnson, 1995, pp. 93, 101). But this figure is deceptive. Some colleges make much more money. In the just-cited 1993 national survey of contract training, one college reported making $8 million dollars in revenues from contract training, and 20 percent of the colleges said they were earning over half a million (Johnson, 1995, p. 93).

However, the dollar amounts fail to capture the fact that contract training also brings in a lot of non-monetary revenue in the form of new facilities, equipment, training aids, and training for faculty (Ashley, 1997; Cousteau, 1997; Ehlers, 1997; Pickar, 1998; Pincus, 1989). These non-monetary revenues greatly cut the cost of providing training not just in the firm-specific programs but also in the generic courses, because the latter can also use the material donated by the auto makers (Ashley, 1997; Cousteau, 1997).

In addition, contract training can create good will on the part of employers, which then results in greater donations to community colleges (Armstrong, 1997; Dalton, 1998; Horton, 1997; Saganski, 1997; Williams, 1997). An official of a Texas community college told us:

> We have done well from some of the partnerships. We have gotten some wonderful scholarships for our students just from doing a

> little training, building relationships ... [Corporation A] is a company that we did a lot of training for and all of a sudden they started granting scholarship money ... the [head of] training for ABC [Associated Builders and Contractors] wrote 97 company owners and told them the needs that [our] College has to teach some advanced levels of training for them. And we're having companies call and say, “How might we help you?”

But even if a contract program runs at a loss, when all types of revenues (monetary and non-monetary, direct and indirect) are counted, community colleges may still feel that they are profiting, because the program brings political benefits.

However, contract-training programs do not always run a profit, even if we use a relaxed definition of profit. Employer demand may disappear or state aid may be cut, in which case the contract training program may run a deficit (Armstrong, 1998). A contract training officer of a New York community college described the financial ups and downs of contract training:

> [What] is really bad news is for these [contract training] organizations to get all their eggs in one particular market basket. Some of the community colleges got their continuing ed [programs] very heavily involved in the training of prisoners, and when [Governor] Pataki cut all that out, they just collapsed and those operations were deleted. We and everyone went through this about six years ago, because the state of New York legislature deleted what was called contract course training, which was the subsidy for doing industry training ... Well we almost went under ... they [the college administration] thought seriously about cutting

> us out completely ... And that kind of situation has happened repeatedly.

External Relations

Even if contract-training apparently loses money, community colleges often feel that it may still benefit them by bringing public visibility and the support of political elites. Greater visibility means that the community college is protected against attacks that it is failing to do its job and is therefore not worthy of additional state or local aid. In addition, by "partnering" with influential employers, community colleges can call on them on occasion to lobby government officials for more money, greater programmatic authority, or regulatory leeway (Armstrong, 1997; Clark, 19983; Dalton, 1998; Demorris, 1997; Derry, 1997; Grubb et al., 1997; Pickar, 1998; Pincus, 1989; Pope, 1998; Sommerstorfer, 1997; Tesinsky, 1997).[36] A government relations executive for one of the Big Three auto companies stated:

> I've gone to the board meetings [of community colleges] and played nice with them and gave them some input on what they wanted to do so that they weren't having to hear it from someone else in the administration that they don't like ... I've helped them in Washington. A couple of colleges had asked that they were looking for a different program or some different funding issue and in one case I was in Washington anyway ... In the case of Missouri I wrote a letter to their representative. Often the representatives, often the constituents they hear from are those who are not happy with the way things may be going, criticize and say, "That school is costing us a lot of money, that program costs us a lot of money. Why are we doing it?" When they hear from one of the benefactors

of the program and "Here's what's happening but here's what we're returning to the community."

By having a strong contract training relationship with a major corporation, a community college may not only have a powerful political ally but also a powerful economic ally. A top official of a Michigan community college explained how his community college wielded economic power based on its deep training ties to a major corporation. First, the corporation's main suppliers were inclined to use that community college as a provider of quality training because of the community college's "ability to say the OEM has already sanctioned us. In other words, for GM, for QS9000 we're one of the suppliers, GM has sanctioned us so people know that so they come here" (Jacobs, 1997). Furthermore, the community college can use its corporate ally to create a demand for its services on the part of suppliers. As a Michigan community college leader put it,

> We're trying to get the OEM's [the original equipment manufacturers, that is, main car makers] to mandate a certain skill level for all designers and mandate it in the contracts for the tier one suppliers. So then we have places for all our students in the tier one suppliers ... the fastest way you can get training in small and medium size firms is you get it through the OEM ... We're funding out ... a professional organization ... to develop skill standards and a skill standards test which is based on our curriculum ... And this test we hope will then be taken on by the OEM and placed in their supplier contracts so they'll say that 40 percent of the people in this shop must have passed this test which puts us in the position of being the supplier of the training. It's an attempt to really use the OEM's market power to force the tier suppliers to utilize us.

Negative External Relations

But contract education can also be a source of negative external relations as well. For one, if community colleges become very active training vendors, they may attract criticism from private vendors, who feel there is unfair competition. This criticism has already been provoked in the case of such things as college bookstores, which have been criticized as publicly subsidized competitors for local book, clothing, and record stores. But it is possible that it may come up as well with contract training operations (Armstrong, 1998). A contract training official for a New York State community college noted:

> We've heard a little of that ... I think if we really got into it [contract training] in a huge way, we'd hear more of it. Right now that's pretty quiet, partly because we are very subrosa. We don't have a big front-end marketing end. We don't put ads in the paper; we're not very visible ... we get contracts away from the private sector pretty regularly [but] often they don't even know the contracts were available. So we're not creating that kind of fuss. But I could see ... the [local] Chamber, many of whose members are consultants and offer training, getting very up in arms if we made a huge move to monopolize training services and started pumping out a lot of slick marketing stuff.

Colleges try to defuse the possibility of external complaints by such devices as keeping their contract training programs relatively small and by subcontracting work to private vendors (Armstrong, 1998). In fact, in a 1990 survey of 42 Illinois community colleges, 71 percent reported that they partnered with private consultants and professional organizations and societies to provide contract training (Bragg, 1990, p. 13).

Governance

The other side of greater business support externally has also been greater business involvement in the internal affairs of community colleges. Certainly, employers contracting for certain programs exercise a dominant role in decisions on the content of those programs they directly contract for (Clemmons, 1998; Derry, 1997; McDougal, 1998; Tough, 1997).[37] For example, the director of automotive repair training at a southern community college noted that the manufacturers and the dealers strongly shaped the direction of the program:

> A lot of that [keeping courses up to date with industry] happens automatically because there is such a close corporate connection: bulletins come in; changes in the curriculum from Toyota, GM, Ford, Chrysler are supplied on a regular basis. But still the local dealers may say, "We are finding they guys don't know enough about transmissions to turn them loose when they graduate. Or you're not teaching trim; there's no course where you stick that. In their first term, they need to know how to find a water leak." So we revise the curriculum to make sure trim goes in there. If we need more emphasis on electronics and less on something else. Over the years I've made changes that are reflected in credits. We now have four credits in brakes instead of three. They're four in electrical instead of three that there was two years ago. And that's based on input from them that "we need more of this and less of that."

But business involvement in governance goes beyond just the programs for which they are contracting. Increasingly federal and state governments are demanding that community colleges have extensive business involvement in the direction of their general vocational education and labor force development programs. And with growing business participation comes growing business

influence. A government relations executive for one of the Big Three U.S. car makers described his role:

> I'm on several college committees [and] several workforce development boards ... Many of the programs that are funded out of Washington or even out of the state, they require business partnerships. And the position I have taken with each of these institutions [is] I'm not going to be in here as a passive participant just so you can say, "Yeah, we have [his firm] on board doing this." If I don't agree with what you're doing and you fail to support or give support or rationale for what you're doing, I'm going to pull my participation out. But more importantly I'm going to notify the state or the feds that I'm pulling out. That's a little bit of a hammer but I need something as opposed to just sitting in a chair. Too many of my peers are doing that [Have you notified the state and the feds in any case?] Yes I have. [What did the state or the feds do for example?] It was the state and they withdrew funding.

Internal Campus Relations

Because contract training brings in additional students, revenues, and political support and it is backed by political and economic influentials, it tends to increase the power and prestige of contract and continuing education educators. The director of auto repair training at a California community college noted:

> An alliance with a manufacturer just sort of gives you that notoriety that people who don't know about you or what you do, haven't heard about your reputation, when they see that alignment with a major manufacturer, it gives it instant notoriety. They align it with quality ... It sort of puts us in a pretty high profile politically

> to gain support from our local administration and the governing board for our program. They start looking at it in a different light from, unfortunately, how many people still perceive automotive repair and technicians as grease monkeys and mechanics and not particularly literate.

The growth of contract training has provoked some grumbling on the part of faculty in the "regular" credit side of the community college. The typical sources of this grumbling are a perception that contract training is getting resources at the expense of regular college programs, taking students away from the regular programs, making inadequate use of the regular faculty, or exercising too much influence over the curriculum (Armstrong, 1997; 1998; Cousteau, 1997; Dalton, 1998; Derry, 1997; Pickar, 1998; Yancey, 1998).

Interestingly, contract programs seem to encounter the greatest friction not with the liberal arts faculty but with traditional vocational educators (Jacobs, 1992; Teitel, 1988).[38] Contract training and regular occupational programs do compete for students. Students who might have enrolled in regular for-credit occupational courses instead end up taking noncredit contract training courses paid for by their employers (Jacobs, 1992). Moreover, by fostering closer ties to business and being more up to date, contract training programs make regular occupational programs look outdated and force instructors in them to bring themselves up to speed (Armstrong, 1998; Ashley, 1997; Clark, 1998; Dalton, 1998; Grindel, 1997; Jacobs, 1987, 1991; Pickar, 1998).

In fact, contract-training programs are often reluctant to use many regular occupational faculty because their skills are not considered up to snuff, thus causing resentment on the part of those faculty members. A 1992 national survey of community colleges found that regular faculty provided only 41 percent of the contract training; the remainder was handled by full-time in-house contract

trainers (7 percent) and part-time instructors hired from the outside (50 percent) (Doucette, 1993, p. 9).

Unhappiness on the part of regular faculty leads them on occasion to refuse to give academic credit to a contract program. Administrators drawn from the liberal arts sometimes refuse to allow contract programs to operate by different rules from the regular program (Armstrong, 1998; Derry, 1997).

But on the whole, the unhappiness of the regular faculty is not very high and does not pose a great hindrance to contract training. One reason is that contract training programs typically try to allay opposition by the regular faculty by such means as getting department approval for teaching contract courses related to their areas, hiring regular faculty as much as they can, and awarding bonuses to programs that provide a lot of faculty to the contract program (Armstrong, 1998; Dalton, 1998; Teng, 1999).

Curriculum and Pedagogy

Contract training has brought significant changes in how courses are taught and organized. One way is by serving, in Jacobs' (1987) term, as a "border scout," bringing back to a community college intelligence on what technologies are being used by firms and what skills are needed to harness those technologies. This can result in more up-to-date course content (Armstrong, 1998; Ashley, 1997; Clark, 1998; Dalton, 1998; Grindel, 1997; Jacobs, 1987, 1991; Pickar, 1998). A contract training officer of a Florida community college stated:

> It's not uncommon that a new program that is a state of the art set of competencies in the community, that industry demands, is often spun off out of our division. For example, we were the first entity at the college to do training in Windows 95 ... [and] Windows 98. We were the first area to have Internet capability in our classrooms and now that is available college-wide. So a lot of times, because

> of the way we're structured and the fact that we can be very responsive to the direct and immediate needs of our community and our corporate community, that will then serve as the catalyst for program development and curriculum development and new technology at the college. (Pickar, 1998, p. 20)

Contract training can also change course content in liberal arts courses. If general education courses are part of a contract training program, those courses are sometimes substantially changed. They are sometimes shortened to fit the accelerated schedule of a contract training program and their content is changed to emphasize concrete issues in the industry (Dalton, 1998; Derry, 1997; Knox & Lorenzo, 1987; Sommerstorfer, 1997; Yancey, 1998). For example, at a Florida community college, the auto repair program is allowed to meet the social science and humanities requirements for the associate's degree with, respectively, Human Relations in Industry and Conversational Spanish. Moreover, both courses are taught using issues and terms specific to the auto repair industry (Derry, 1997).[39]

Contract training may change not only the content of courses but also their pedagogy. Corporate customers for contract training much more often use new instructional techniques and technologies than do most college teachers (Antholis, 1998). College instructors brought in to teach corporate courses often pick up these new techniques and then import them back into their regular courses (Doucette, 1993, p. 18).

Mission Redefinition?

Traditionally, the primary purposes of American education have been as much about cultivating citizenship as serving economic efficiency (Labaree, 1997). But as community colleges ardently pursue a strong connection with business and the economy, their interest in the traditional tasks of schools may attenuate. Two possible mechanisms stand out—attitude/cultural change and loss

of administrative attention.

Attitude change. There is scattered evidence that involvement in contract training does reshape the attitudes of community college faculty and administrators, who then carry these attitudes into traditional areas of the curriculum. A number of our interviewees indicated an impatience with the notion of education for other than job preparation (Cousteau, 1997). The director of auto repair training at a California community college stated:

> General education and the liberal arts, it's always been a real thorn in my back they don't have anything to link with in the real world. It's almost sad. I have written a couple of articles in our academic newsletter about the fact that, bottom line, we're all vocational educators, but just some of us are seen that way more readily than others. But we're all preparing our students for the eventual workplace ... There's a certain segment of people who are so far out in left field that they are actually threatened by that concept ... They went to school their whole life and they get out of school and they go teach school. They don't have much connection with what everybody else has to do to survive and what it takes, what skills are really needed in the workplace.

For this auto repair director, the solution is a deeper involvement by business in shaping the curriculum of the college:

> We're going through revisiting our general education requirements in our institution.... I have gotten the Math Department to ... work with me on developing a really good Technical Math class with involvement from industry and the business community. I have said, hey, vocational programs have had to have advisory committees; we've always had them. We need to have advisory

> committees for our liberal arts program that have community leaders, business leaders, industry leaders.

A similar belief in education as primarily job preparation can be seen in the remarks of contract training directors in a 1993-94 national survey of two-year colleges. These directors stressed the importance of running contract training in a business-like fashion (Johnson, 1995). Furthermore, when these directors praised certain community colleges as running exemplary contract training programs, a frequent theme was that these colleges ran their operations in a very “business-like” way, which was contrasted sharply with the typical collegiate way. For example, the community college receiving the most mention was praised by one observer for running "their contract training and business services like a business. They are marketers first and educators a distant second" (quoted in Johnson, 1995, p. 139). The contract training director at another frequently praised college, described his program's ethos: "We run our customized training as a business, not as an educational entity. We are very close to our customers. In order to make it work, you have to listen to the customer, then do what you need to do to be successful. You cannot afford to run contract training like a traditional college" (quoted in Johnson, 1995, p. 154).

It can be argued that, no matter how much community colleges claim that they are becoming more businesslike, that is not the reality. Still, a number of business executives we interviewed have perceived a change in the collegiate ethos, though they feel it is far too slow for their taste. For example, a government relations executive for one of the Big Three auto makers stated:

> As slow as the colleges sometimes seem in change, ... they have made some phenomenal steps over the last seven years. Is that because they have become more understanding of business? Probably not. I think [it's] because their funding sources are

> requiring that they participate in some sort of partnership with business, and in order for them to do that, they've had to listen. In some cases they are left turning a deaf ear, but they're listening. Other cases they're listening and not doing much with it. But in most cases in the colleges that we are dealing with, they listen and they do respond—some more aggressively than others—but nonetheless they do respond. Is that because I'm continually holding the hammer over their head of withdrawing the grant out of that institution or dropping that institution from our list? Probably. Does it work? Absolutely.

But even if the attitudes of community college faculty and administrators do not change, a growing emphasis on contract training may still cause a redefinition of community college mission in other ways.

Loss of administrative attention. Administrators' time and attention are finite. The more time they devote to expanding contract education, the less they have to devote to such traditional missions as education for citizenship, providing access to the four-year colleges, and serving under-prepared students (Cohen and Brawer, 1996; Grubb et al., 1997, p. 36; Kopecek, 1984; Pincus, 1989). The transfer program may particularly feel the effects of a loss of administrative attention. It takes great administrative energy and attention to construct and maintain an effective college transfer program. For example, articulation agreements with four-year colleges to allow easy transfer of credits are hard to forge and need to be continually updated, as new courses are offered by community colleges and four-year colleges and as the signatories to the initial agreement pass on and new principal actors have to be socialized. Administrators need to provide the muscle and elan for this process, but their attention and

energy may be in shorter supply as they focus their efforts on getting a contract-training program off the ground.

Organizational Bifurcation?

There is a real danger that the further development of contract training may drive a wedge into the core of the college (Grubb et al., 1997; Teitel, 1988, 1991). As it is, the workforce and economic development wing of a college tends to differ substantially from more traditional wings in their organizational culture, the kinds of students they enroll, the ways they teach those students, and what revenue streams they draw on to finance their efforts (Brand, 1997).

But if these differences are then cast in concrete in the form of separate organizational structures and even buildings, the result may be the creation of a deep cultural/organizational divide within the community college. In fact, a national survey in 1993-94 of two-year institutions offering contract training found that 30 percent of them housed this training in separate specialized units.[40] And it was the colleges most active in contract training that were most prone to set up these specialized units (Johnson, 1995, pp. 96, 169-170).[41] If the contract training program is set up in a separate business and industry institute, perhaps housed off campus, it may be even less likely to utilize regular faculty. As a result, the "border scouting" (Jacobs, 1987) function of bringing in new ideas for curriculum content and pedagogy is undercut (Armstrong, 1998). Moreover, there is a greater chance of the "regular" and "contract" sides hardening in their separate cultures and developing overly negative images of each other.

III. SMALL BUSINESS ASSISTANCE AND INCUBATION

Beyond providing contract training, the community college has also moved into nurturing existing small businesses and incubating new ones. However, this role has been clouded by the fact that it is described in various, partially overlapping and partially conflicting terms such as small-business assistance, business incubation, and technology transfer.

Defining Small-Business Assistance and Incubation

Small-business assistance involves providing owners and managers of small businesses with advice and training in such areas as management and personnel practices, marketing, finance, procuring contracts with government agencies, adopting new production technologies and work practices, adapting to new government regulations, and training employees (Grubb et al., 1997; Hernandez-Gantes, Sorensen, & Nieri, 1996; Katsinas & Lacey, 1989; Lynch et al., 1991; Palmer, 1990).

Small-business incubation, meanwhile, focuses on firms that are just emerging or even still in gestation. Besides providing the business advice noted above, business incubators also provide low cost space and administrative support for the first few months or years of a new firm's life (Hernandez-Gantes et al., 1996; National Business Incubation Association, 1992).

Finally, technology transfer both overlaps with and diverges from the above. It includes providing owners and managers with advice on new production techniques, which we have listed above under small business assistance. But technology transfer is also used to include training workers in those new techniques, something that typically falls under the term "contract training." Hence, we subsume technology transfer under small business assistance, except for worker training, which is discussed under contract training.

Forms of Delivery

Community colleges proffer small business assistance through a variety of mechanisms. Sometimes, they have formally designated small business centers or business incubators with their own facilities and staff. Other times, the assistance is provided informally, as an adjunct to business courses.

Small-Business Development Centers

Small-business development centers are sponsored by as many as one-third of community colleges (Lynch et al., 1991, pp. iv, 35, 41). In addition, about seven percent of community colleges operate advanced technology centers (ATC's),[42] which help small and medium-sized firms keep track of new production technologies and work practices, try out these new technologies and practice at factory-like facilities on the community college campus, and then introduce them into the workplace (Ernst & Johnson, 1991; Harrison, 1997; Hinckley, 1997; Lynch et al., 1991; Smith, 1991).[43]

For example, Ohio has developed a statewide system of eight Edison Technology Centers housed at community colleges to help manufacturers become familiar with new equipment in robotics, microelectronics, and computer-assisted design and manufacturing (CAD/CAM). All the community colleges have been given a full-time technology agent to provide information and assistance to business on emerging technologies (Harrison, 1997; Kent, 1991; Smith, 1991).

Business Incubators

As of 1993, there were at least 500 business incubators in the United States (Adkins, 1996; Hernandez-Gantes et al., 1996).[44] However, a study by the National Center for Research in Vocational Education estimated that only 25 incubators were sponsored by two-year colleges (Hernandez-Gantes et al., 1996, p. 5).[45] This estimate was based on reviewing the sponsorship of incubators listed

in the 1993-94 database of the National Business Incubation Association. Yet a national survey of community colleges in 1989 found that eight percent of the community colleges reported having incubators (Lynch et al., 1991, p. 41; Waddell, 1990). If we extrapolate this figure to the current number of community colleges (948 in 1996) (American Association of Community Colleges, 1997), we get 76 incubators associated with community colleges. Whatever the case, business incubators sponsored by community colleges are pretty rare.

These incubators at two-year colleges provide a variety of services, which are summarized in Table 9.

Table 9: Services Typically Provided by Two-Year College Incubators

Services Offered by Incubators	*Percentage of Community College Incubators Offering Service* (N=9)
* low-cost office space:	NA
* office equipment and furniture:	78%
* office services:	89%
* accounting/tax assistance:	67%
* advice on business/strategic plan:	100%
* advice on financial management:	89%
* advice on sales/marketing:	89%
* advice on government procurement:	89%
* advice on securing government aid:	78%

Source: National Business Incubation Association (1992, pp. 72-73)

Less Formal Assistance

The 1989 national survey of community colleges mentioned above also found that a host of community colleges provided a variety of other, less formal assistance to small business. One-third held Small Business Administration training workshops, 18 percent helped businesses obtain financing, and 13 percent helped with contract procurement (Lynch et al., 1991, p. 41).

Utilization of Small-Business Assistance Across Industries

As in contract training, utilization of the small-business assistance

programs of community colleges varies by industry. A survey of community-college-sponsored business incubators in 1993-94 found that manufacturing and wholesale trade firms compose a greater share of incubator clients than they do of establishments generally, but the opposite is true of construction and retail trade.

Table 10: Industrial Composition of Clients of Two-Year College Incubators

	Percentage of incubator clients (1993-94)	Percentage of all business establishments (1993)	Ratio
Construction	2.9%	9.3%	0.3
Manufacturing	11.8%	6.0%	2.0
Retail trade	5.9%	24.2%	0.2
Wholesale trade	14.7%	7.9%	1.9
Services	32.4%	35.7%	0.9

Sources: Hernandez-Gantes (1997); U.S. Census Bureau (1997, p. 540).

To our surprise, we found only scattered instances of small business assistance targeted to specific industries. In the apparel industry, the Garment 2000 program at City College of San Francisco has an array of courses and technical assistance for small garment firms. These courses offer an overview of the industry (for would-be owners) and provide technical assistance on managing cash flow, improving marketing, and raising production efficiency and quality (Sasser-Watkins, 1998; Schiorring, 1998). Meanwhile, the apparel program at Los Angeles Trade Tech College offers classes in computer-assisted design for production managers and is planning a small-business incubation center. Furthermore, instructors in the L.A. program are frequently called on informally for advice by small business owners (Tate, 1998; Metchek, 1998).

In the construction industry, Borough of Manhattan Community College in New York City has a program to increase the competitiveness of minority contractors by providing managerial advice and technical. San Jacinto Community College in the Houston area and Los Angeles Trade Tech, while

having no dedicated small-business assistance for construction, offer informal consultation through faculty members teaching in the construction program (Horton, 1998; Jones, 1998; McNeil, 1998).

Not surprisingly, the major reason community colleges do not have a small-business assistance effort devoted to a particular industry is that the number of local firms in the industry is too small (Lynch et al., 1991). For example, the dean of technical and occupational programs at a Texas community college noted:

> We haven't done anything specifically for people in the automotive services. It would be a pretty small group. We have directed [them to] some of the people I work with ... the Automotive Service Association, the Equipment Maintenance Council, and other groups that address auto service needs. I will usually refer them on an individual basis when they mention, "I need training in X." So we haven't targeted a small business course for people who want to open their own small businesses. But we would if we got the demand.

Given this low demand from any particular industry, it makes more sense to provide more generic assistance that small or emerging firms in any industry can draw on.

The Competitive Position of Community College Programs

The community college is far from being the principal provider of small business assistance. Other major purveyors of advice are trade and industry associations and equipment and material suppliers. The auto repair industry provides an illuminating window on this variety of providers.

The Automotive Service Association (ASA), which represents independent garage owners, helped found the Automotive Management Institute,

which does a lot of one-shot presentations on business topics. In 1996, AMI enrolled 7650 students and employed 75 instructors (Automotive Management Institute, 1996; Merwin, 1998).[46] In addition, the ASA has established support groups of small garage owners from different parts of the U.S. who periodically meet to tour each others' garages and give advice (Merwin, 1998).

In addition to these industry associations, the auto repair industry is thickly populated with suppliers that provide a lot of training to garage owners. PPG Industries has 20 training centers across the country offering garage owners courses not only on painting techniques but also on small-business management and how to comply with new state and national rules on volatile compound emissions (BodyShop Business, 1997a). Similar courses are offered by Sherwin-Williams Paint and NAPA/Martin Senour (BodyShop Business, 1997b, c).

One reason many small business owners go to other providers rather than community colleges for assistance seems to be that they feel defensive about their lack of formal education and their dirty jobs (Merwin, 1998). An official of the Automotive Service Association noted:

> Lots of our grass roots people are not highly educated and they don't feel comfortable walking onto a college campus. These are people with grease on their hand. They make a good living for themselves but they don't feel exactly socially comfortable doing that. I don't think that the colleges have made any effort to get out to these people.

A similar factor may explain low utilization of small business assistance by apparel and construction companies.

Origins of Community College Small-Business Assistance

The forces behind the development of small business assistance by

community colleges differ rather sharply from those behind contract training. This is not surprising given the fact that the former is much less widespread than the latter and is targeted to small business, rather than business in general.

Business Demand

Business initiative has played only a small role in the development of small-business assistance and incubation, and this role has been restricted largely to the development of advanced technology centers rather than small-business development centers. For example, business was involved in planning a new Technology Application Center at Kalamazoo Valley Community College, and Upjohn Labs and Kellogg made large donations to help the community college match a state construction grant (Hinckley, 1997). Similarly, in Iowa, business aided the establishment of a Graphic Arts Tech Center at Eastern Iowa Community College District (Clinton) by consulting on the plan and providing $1 million in donations (Hinckley, 1997).

However, there is little evidence of a major business role in the formation of small-business development centers. Smaller firms, especially fledgling ones, simply lack the political strength and surplus energy to push for new programs.

Government Policy

The development of small-business assistance and incubation by community colleges owes much to federal and state policy.

Federal initiatives. Federal legislation—PL 86-302 in 1980, as amended by PL 98-395 (1984)—established financial assistance for the establishment of Small Business Development Centers and many community colleges responded (Carmichael, 1991; Novick, 1998). The federal government also provides more specialized forms of aid. The National Institute of Standards and Testing (NIST) of the U.S. Department of Commerce has provided grants to community colleges

in such states as California, Illinois, Michigan, and New Jersey to establish manufacturing extension centers to speed the technological modernization of small and medium-sized firms (Berglund & Coburn, 1995; Michigan Jobs Commission, 1997; Williams, 1997).

Furthermore, the National Aeronautics and Space Administration (NASA) has supported the establishment of high technology incubation centers in states, such as Florida, where NASA has a strong presence (Pickar, 1998).

State government aid. Small-business assistance efforts have also received strong support from many state governments. For example, New Jersey, Maryland, Illinois, Arizona, California, and Oregon have established statewide networks of small business development centers (SBDC) housed at community colleges (Carmichael, 1991; Cutler, 1984; Dozier, 1996; Melville & Chmura, 1991). Illinois' program may be one of the most developed. The Illinois Department of Commerce and Community Affairs (DCCA) provides grants to community colleges to start or expand business assistance and resource centers and works with community colleges to co-sponsor small-business training workshops, run the state Illinois Procurement Outreach Program, and promote industrial retention (Boyd-Beauman & Piland, 1983; Burger, 1984).

This state initiative has come from various quarters. Sometimes the governor has been the leader, as was the case in Pennsylvania with Governor Robert Casey (Breuder, 1988; Sugarman, 1992). Sometimes the leader is the state department of commerce, as in Illinois (Boyd-Beauman & Piland, 1983; Burger, 1984). And sometimes it is the community college or higher education board, as in Virginia and California (Chaffin & Edwards, 1989; Dozier, 1996).

Community College Initiative

Clearly this federal and state aid has played a major role in encouraging community colleges to establish programs for small-business assistance and

incubation. However, not all community colleges respond to these incentives. When they do, the initiative typically comes from the upper administration, especially the president. The faculty role is usually minimal (Hinckley, 1997; Novick, 1998). The director of a small-business development center at a New Jersey community college described the leading role of the college administration in starting the center:

> They [the administration] came to me and said, "Are you interested in doing this? We'll release you from some of your classes if you'll direct this program and this is what the mission is"... So I was released from teaching, [given] a very small budget and instead of teaching I would see clients.

Community colleges have been attracted to small-business development centers in good part by their ideology of general service to the community (Novick, 1998). The director of a small business development center at a New Jersey community college noted:

> This is a very community spirited minded college. Anything that will help the community they're interested, big time. For instance, I work with teenagers, what's called the Teen Business Institute. We have a grants department that got a grant for us to work with youngsters, minority youngsters and showing them how to become entrepreneurs, and we do this on a Saturday ... I don't know whether it's unusual from community colleges, whatever they can do to help the community they will do ... I would tell you that if I went to anybody who I directly report to along the chain and said, "Listen, I would like to do this and this and I think this would be great for Keyport, it's not going to really cost you any money...

Should I give it a shot?" They'd say yes because they're interested. First of all it's good publicity, newspapers pick it up right away.

As this comment makes clear, the desire to serve the community blends both altruistic and self-regarding motives. Small-business development centers bring good publicity and hence public support. This support is useful in protecting a college's appropriations from state and local governments (Novick, 1998).

Impact of Small-Business Assistance and Incubation

We have even less data on the impact of small-business assistance than of contract training. Nonetheless, a few observations are possible.

Impact on Client Firms

We have not come across any rigorous studies of the impact on firms of the entire range of small business assistance provided by community colleges. However, there are a number of studies at hand on the impact of business incubators in particular.

In a national survey in 1993-94, tenants of two-year college business incubators rated low-cost space as the service the incubator provided best (47 percent chose it), followed by clerical/office services (18 percent). Only ten percent said management assistance was the service the incubator provided most effectively, only eight percent stated it was education and training, and only five percent said it was technical assistance. However, it might be some consolation to community colleges that tenants of incubators sponsored by other organizations (such as universities) were even less likely to rate business advice as the most effective service provided by incubators (Hernandez-Gantes et al., 1996).[47]

Unfortunately, we have not found any assessment of the impact of community college incubators on firms. However, there are studies on the impact of incubators in general, whose findings we can generalize, with caution, to

community college incubators (Adkins, 1996; National Business Incubation Association, 1992). In 1995, a nationwide[48] study found that the median incubator reported that 13 percent of its tenants graduated from the incubators, 7 percent were asked to leave before graduating, and 7 percent went out of business, while 73 percent remained (Adkins, 1996). Meanwhile, a 1991 NBIA national survey found that, of 481 firms that had "graduated" from the incubators,[49] 76 percent were still in business, 9 percent had merged with another firm, and 15 percent were out of business.[50] The firms still in business had an average of 11 full-time equivalent employees (the median was 4). And for 62 firms for which data were available, average revenues in 1990 were $1.1 million (median revenues were $240,000) (National Business Incubation Association, 1992).[51]

Impact on Community Colleges

We have virtually no hard information on the impact on community colleges of their efforts to provide small-business development assistance. However, there is some reason to believe that a small-business development center attracts some students to the community college and helps strengthen the political base of the institution. A director of small-business development in a New Jersey community college stated:

> What it does is it brings people into the college so that if I'm a business person and I've never been to the college and I come to the college and I've had a good experience, ... maybe I tell somebody else how terrific it was. Maybe while I'm here I tell my son who hasn't decided where he wants to go yet, "I was over at [the college]. It's really a nice place. I met some nice people. You may want to consider that or even if you go someplace else you might want to take courses." So I guess there is a value to it, something that you cannot place your hands on.

This statement is entirely plausible. Unfortunately, we have no hard data to back it up.

IV. LOCAL ECONOMIC DEVELOPMENT PLANNING

The growing role of the community college in local economic planning is the most recent and least charted dimension of the new economic role of the community college. It is also perhaps the most unique. It puts an educational institution in a role that has typically been held by a city or state planning commission. And whereas other countries place social and economic planning primarily at the national level, the United States gives local planning a significant role. And whereas other advanced countries give their educational institutions a more narrowly educational mission, the United States uses them as multi-purpose social agencies.

Main Dimensions of the Economic Planning Role

The economic development planning role of the community college spans a wide range of activities. It includes acting as an economic watchman, scanning the social environment for developments and trends of interest to employers, government agencies, civic groups, and the public at large. Beyond serving as local analysts of social and economic trends, many community colleges have become local economic policymakers, working actively to create or shape their locality's response to those economic and social trends. This policymaking role includes joining local economic policymaking organizations and local and state initiatives to attract employers to a locality and, in the absence of such organizations, even convening meetings of local political and economic leaders to develop economic development policy. Finally, some community colleges have gone so far as to lobby local, state, and federal government in favor of certain economic policies.

Economic Watchman

A number of community colleges scan the economic environment for social and economic trends, emerging work practices, and new regulations and then pass this information on to employers, government agencies, civic groups, and the public at large through public forums and mass media programs (Grubb et al., 1997; Palmer, 1990; Thomas, 1989). This role is an outgrowth of community colleges' longstanding monitoring of their environment to identify emerging needs (or at least potential customer demands) for pre-service and in-service training.[52] The key difference is that the new socio-economic scanning is no longer focused on informing the community college but rather is directed as well to educating policymakers and the public.

A leading example of the community college as economic watchman is Macomb Community College, just outside of Detroit. Its Center for Community Studies publishes an Annual Economic Review and Forecast and various Bellwether reports that analyze social and economic changes (national, state, and local) that will affect Macomb County and the auto industry, which is the main motor of the county's economy (Grubb et al., 1997; Jacobs, 1998).

Less ambitiously, the garment programs at the City College of San Francisco and Los Angeles Trade-Tech have also functioned as economic scanners for that industry. CCSF has issued research reports that analyze the current situation and future prospects of the local garment industry in light of national and international trends in the industry (City College of San Francisco, 1997b). Similarly, LA Trade Tech was part of a consortium of apparel programs that commissioned a report on the state of the California apparel industry. This report was to be given out to industry members and the trade press (Tate, 1998).

Participating in Local Economic Planning Organizations

In addition to serving as local analysts of social and economic trends,

many community colleges have become local economic policymakers, working actively to create or shape their locality's response to those economic and social trends. This involvement can take several different forms.

Community colleges have frequently joined local economic policymaking organizations and local and state initiatives to attract employers to the region (Grubb et al., 1997; Hinckley, 1997; Jacobs, 1992; Katsinas et al., 1995; Lynch et al., 1991; Palmer, 1990; Task Force on the Role of Community Colleges in Economic Development, 1988; Thomas, 1989). A national survey of community colleges in spring 1994 found that 66 percent of the responding institutions reported that a college staffer was a member of the local area economic development council and 61 percent said that a staffer served on the local Private Industry Council (PIC) that administered Joint Training Partnership (JTPA) funding for the local service delivery area (Katsinas et al., 1995).[53] Meanwhile, a survey of Michigan community colleges in 1992 found that 86 percent were involved with their local PIC (Jacobs, 1992). These data can be seen in Table 11.

Table 11: Extent of Community College Involvement in Economic Planning

	United States	*Michigan*
Year of survey	Spring 1994	Spring 1992
Source of survey	Katsinas et al. (1995)	Jacobs (1992)
Response rate	24%	52%
Local Economic Development Council	66%	
Local Private Industry Council (JTPA)	61%	86%
Local Welfare Agency Council	31%	
State Private Industry Council (JTPA)	10%	
State Welfare Agency Council	5%	

In the absence of existing economic organizations, community colleges have themselves convened meetings of local political and economic leaders to discuss what actions to take (Antholis, 1998). For example, the director of

business training for a New Jersey community college noted:

> We closely partner with our local representatives to be a location for forums and discussions on company needs or employee needs ... in the county. For example, if a plant is closing, ... we provide the college as a forum for discussion of employee union representatives, other local business people to meet with a legislative official to air these concerns.

Lobbying Higher Levels of Government

Finally, community college involvement in economic planning goes so far in some cases as to lobby local, state, and federal government agencies in favor of certain economic policies (Schiorring, 1998; Wood, 1998). For example, an economic development official of a California community college stated:

> We keep close informal connection with our representatives in the state legislature as well as at the national level ... We try to keep those offices well appraised of what we see going on in the community, where we see the need for perhaps some legislative change that would make it easier for business.

One of the most striking examples of community college involvement in economic planning has been the Garment 2000 program at the City College of San Francisco. Along with local political and garment industry leaders, CCSF developed Garment 2000 as an effort to "reposition the local garment industry in a way which would enable small and medium sized apparel producers to compete in the global economy" (City College of San Francisco, 1997b, p. 1). Among other things, Garment 2000 has written and promoted legislation to help small apparel businesses invest in new technologies and training methods (City College of San Francisco, 1997a,b; Schiorring, 1998).

Origins of the Economic Planning Role

Community colleges have long been monitors of local economic conditions as an adjunct to their program development activities. In order to establish or change programs as labor market demands changed, they have long gathered data on current and future labor needs of employers and future prospects of the local economy. A director of contract education at a community college noted:

> We scan the environment vigilantly because, when resources are scant, it takes longer to put together a sound training program. Knowing company relocation plans well ahead of time can make the difference between being prepared to train new employees and losing out altogether. (quoted in Zeiss & Associates, 1997, p. 67)

It is a short step from this economic monitoring effort for internal purposes to assuming a public role as a center of economic information. Much the same information gathering is involved. What mainly changes is the breadth of the intended audience.

The involvement of community colleges in local economic planning organizations often has arisen from college officials being invited to join. Officials of economic development organizations have hoped to harness the training capacities of community colleges in order to attract or retain business firms.

But community college officials have also pushed to join economic planning organizations because they are aware that they can then make connections that will redound to the benefit of their colleges. Certainly, community college officials realized in the 1970s and 1980s that their ability to secure training contracts from local CETA (Comprehensive Education and Training Act) and later JTPA (Job Training Partnership Act) prime sponsors

depended on the strength of their ties to those sponsors (Olson, 1977). And when JTPA mandated in 1982 that the decisions of local Service Delivery Areas would be made by Private Industry Councils (PICs), community colleges were quick to try to join those PICs. Three California community college administrators stated:

> As JTPA contracts are issued by the SDA's, frequently on a competitive basis in a public and often political environment, pro-active involvement by the president usually is required for the institution to successfully pursue JTPA contracts ... it is crucial that the colleges have good representation on the local PIC. It is perhaps the most important element in the successful development of programs. It seems obvious, but too often we forget that meetings can be good forums for support. Persistence at PIC meetings and consistently championing the cause of community colleges will definitely increase the chances for positive results. (Ruiz et al., 1987, p. 3)

In addition to pushing for membership on the local boards administering federal job training funds, community colleges have also pushed to develop strong ties to economic development agencies, joining their boards when possible (Bragg, 1990; Dalton, 1998; Pickar, 1999; Zeiss & Associates, 1997). The dean of continuing education of a community college noted:

> Business people network in order to generate business ... The president and senior administrators, especially corporate and continuing education officers, of community colleges should enter this milieu and become seen/known as senior executives of a service industry. (quoted in Zeiss & Associates, 1997, p. 65)

In fact, a survey of Illinois community colleges in 1989 found that 69 percent agreed that the college president should have "a great deal of visibility in

community partnerships bringing college and business-industry leaders together" (Bragg, 1990, p. 14).

Impact of Local Economic Planning

Impact on Businesses

We know very little about the impact of the community college's economic planning role on firms and the local economy. This is clearly an area deserving of careful research.

Impact on Community Colleges

From our interviews, it is possible to say a bit about the impact on community colleges of their involvement in local economic planning. But these data are largely anecdotal, again indicating a need for more research.

More contract training business. For the community college, its new role in economic planning may help it get more contract training business. By helping recruit firms from outside, community colleges make themselves known to those firms and make it more likely the firms will ask the community college to do contract training for them (Dalton, 1998; Pickar, 1998; Wood, 1998). A dean for contract training at a Florida community college noted:

> Because we work so closely with the EDC [Economic Development Commission] at mid-Florida and the Chambers of Commerce, and our county government, ... we're part of that group. Because we work so well together, there's a lot of cross-selling that goes on between those entities and the companies so that they have a much more favorable impression of the college than you may have in some other areas.

More political support and perhaps opposition. A community college's

involvement in local economic planning efforts may solidify its ties to local political and economic notables: major firms, business associations, and government agencies. They may become more aware of the community college's usefulness to them and more strongly supportive (Dalton, 1998). For example, a dean of continuing education at a Texas community college noted that, as result of her college's involvement in local economic development agencies, "any time that we submit an application to the state for a grant, we have a support letter from one or the other economic development foundations."

However, the involvement of the community college in economic policymaking also means that it may be ensnared in local political conflicts. If it recommends policies to benefit a particular industry, it may alienate other actors: workers in that industry who are at odds with management, other industries that are competing for the same resources, or community groups harmed by the proposed policy. And if the community college's policy recommendations fail to have the promised effect, the community college may become subject to great criticism.

V. RESEARCH AND POLICY RECOMMENDATIONS

Our review of the community college's involvement in new economic development activities—whether contract training, small business development, or local economic planning—has found that this involvement is very broad, engaging many firms and community colleges and having a significant influence on both. Yet data on the impact of the new economic role on trainees, firms, and community colleges are relatively scarce. This suggests that this new economic role merits much more careful scrutiny than it has received to date. However, the data we already have at hand suggest places in which current policy guiding the new economic role of the community college should be changed.

Research Needs

The data on the impact of the new economic role of the community college are quite patchy. This becomes clear if we create a twelve-cell table, cross classifying the three types of economic activities (contract training, small business assistance, and local economic planning) and four areas of impact (community colleges themselves, trainees, firms, and the local economy generally). We have relatively good data for only one cell: the impact of contract training on community colleges. All other cells are quite sparse. And in the case of the impact on the local economy generally, we essentially have no data. Clearly, there is much research to be done. However, some of this research will be very hard to do. Determining the impact of community colleges on local economies is extremely difficult, given all the other causes of local economic conditions and the fact that the community college effects may take a long time to emerge. Within this broad panoply of research gaps, we would highlight three as of particular interest.

We need to further investigate the extent to which the growing involvement of community colleges in new economic development activities

undercuts their effectiveness at such traditional and still important roles as baccalaureate preparation and remedial education. We have anecdotal information that the new economic role undercuts interest in the liberal arts, and we speculate that the new role may steal administrative time and attention from maintaining and extending their transfer and remedial programs. We need to examine how a large sample of community colleges that vary in their degree of commitment to the new economic role differ in their commitment to their traditional academic functions.[54]

Secondly, we need to establish the degree to which the contract training expenditures of community colleges and state governments are, on the one hand, catalyzing firms to engage in training that they otherwise would not do or, on the other hand, substituting for employer expenditures on training. The first effect is clearly desirable; the second may well be needless corporate welfare.

Finally, it would be interesting to further investigate why tenants of small business incubators, whatever their sponsorship, put relatively little value on the business advice that they receive and much more value on the simple provision of low-cost space and support services. Since this is common across all incubators, whether sponsored by community colleges or not, it seems to indicate that it is a problem in the very nature of business incubators.

Policy Needs

The data we do have on the new economic role of the community college already suggest that it may benefit from policy changes. In the case of contract training, we have highlighted concerns about possible negative impacts of the growing involvement of community colleges with employers. Local community college boards and state government officials need to consider ways of insuring that this involvement continues to grow but yet does not irremediably change the nature of the community college. It is crucial that community colleges retain the

ethos of educational institutions and not come to see themselves as just another training provider. One key difference between education and training is that education aims for more than job preparation; it also encompasses the vision of preparing an educated citizenry willing and able to take part in public deliberation. This means that public policy should address the question of how to ensure that community colleges try to insert as much as they can general, and even liberal arts, education into their contract training and other economic development programs.

Community colleges have also long been crucial doors to postsecondary opportunity and pathways to the pursuit of baccalaureate degrees. If we are right that the growing involvement in workforce preparation and economic development undermines transfer and remedial education, public policymakers need to craft policies that provide incentives to community college administrators to maintain vigorous baccalaureate-preparation and remedial-education programs. Moreover, policymakers should investigate ways of making the contract training and small-business advice maximally creditable toward college degrees, whether associate or baccalaureate. The aim should be the maximal articulation between different kinds of community college programs—whether traditional degree programs or noncredit contract training courses—so that contract training students can attain credentials that have as much educational and economic convertibility as possible.

In the case of small-business assistance and local economic planning, policymakers should give considerable attention to making sure that these activities are strongly oriented to serving the needs of disadvantaged populations. Happily, there is growing awareness of the importance of ensuring full access by women and minorities to small business assistance. But that same commitment should occur as well with the local economic development-planning role of the community college. It should see its interlocutors as being not just local and state

economic development agencies and business associations but also labor unions and groups representing minority groups and women.

REFERENCES

Adkins, D. (1996). *A decade of success: 10th anniversary survey of business incubators.* Athens, OH: National Business Incubation Association.

Aldrich, H. & Pfeffer, J. (1976). Environments of organizations. *Annual Review of Sociology, 2,* 79-105.

Alford, R. & Friedland, R. (1975). Political participation and public policy. *Annual Review of Sociology, 1*, 429-479.

Allard, E. (1998). Interview by Kevin Dougherty with Director, Trade and Apprenticeship Education Division, Henry Ford Community College, Dearborn, MI.

American Association of Community Colleges. (1993). *The workforce training imperative: Meeting the training needs of the nation.* Washington, DC: Author. (ERIC ED 358 878).

American Association of Community Colleges. (1997). *National profile of community colleges: Trends and statistics, 1997-1998.* Washington, DC: Author.

American Institute of Banking. (1998). *Course and product catalog*. Washington, DC: Author.

Antholis, H. (1998). Interview by Kevin Dougherty with Manager, Business Training, Brookdale Community College, Lincroft, NJ.

Applebaum, E. & Batt, R. (1994). *The new American workplace.* Ithaca, NY: ILR Press.

Armstrong, G. M. (1997). Interviews by Marianne Bakia and Kevin Dougherty with Coordinator, Technical and Professional Training, Continuing Education Division, Hudson Valley Community College, Troy, NY.

Armstrong, G. M. (1998). Interviews by Marianne Bakia and Kevin Dougherty with Coordinator, Technical and Professional Training, Continuing Education Division, Hudson Valley Community College, Troy, NY.

Ashley, D. (1997). Interview by Kevin Dougherty with Department Chair, Automotive Training Center, Hudson Valley Community College, Troy, NY.

Atwood, D. (1998). Interview by Kevin Dougherty with Director, Ford North America Training Center, Detroit, MI.

Automotive Management Institute. (1996). *1996 annual report.* Bedford, TX: Author.

Bailey, T. & Bernhardt, A. (1997). In search of the high road in a low wage industry. *Politics & Society, 25*(2), 179-201.

Bakum, J. (1991). A new training role for community colleges. *Employment Relations Today,* (Summer), 221-227.

Barron, J. M., Black, D. A., & Loewenstein, M. A. (1989). Job matching and on-the-job training. *Journal of Labor Economics, 7*(January), 1-19.

Bartel, A. P. (1995). Training, wage growth and job performance: Evidence from a company database. *Journal of Labor Economics, 13*(3), 401-425.

Beale, D. (1998). Interview by Kevin Dougherty with Dean of Humanities and Social Sciences, Cerritos College, Norwalk, CA.

Benson, T. (1998). Interview by Marianne Bakia with Director, Carpenters Joint Apprenticeship and Training Committee Fund for Southern California, Los Angeles, CA.

Berglund, D. & Coburn, C. (1995). *Partnerships: A compendium of state and federal cooperative technology programs.* Columbus, OH: Batelle Press.

Bishop, J. (1990). Job performance, turnover, and wage growth. *Journal of Labor Economics, 8*(3), 363-386.

Blanzy, J. (1983). *Awareness to action.* Paper presented at the 1983 meeting of the American Vocational Association. (ERIC ED 237 733).

Block, F. (1987). *Revising state theory.* Philadelphia, PA: Temple University Press.

Blum, J. (1998). Interview by Kevin Dougherty with UAW representative,

Joint Apprenticeship Committee for GM Tech Center-Local 160 UAW, Warren, MI.

BodyShop Business. (1997a). *PPG automotive refinish,* (July), 88-89.

BodyShop Business. (1997b). *NAPA/Martin-Senour automotive finishes,* (July), 86-87.

BodyShop Business. (1997c). *Sherwin-Williams automotive finishes corporation,* (July), 90-91.

Bosworth, B. (1999). *Unpublished tabulations from the 1998 Survey of state-funded, employer-focused job training programs.* Belmont, MA: Regional Technology Strategies, Inc.

Boyd-Beauman, F. & Piland, W. E. (1983). Illinois, Arizona find great resources in colleges. *Community College Journal, 54*(November), 18-20.

Bragg, D. D. (1990). *Building world-market competitors: Technology transfer and the Illinois community college system.* Springfield, IL: Illinois Council of Public Community College Presidents.

Bragg, D. D., Hamm, R., Lavista, D. J., & Lyon, H. G. (1991). The evolving role of community colleges in technology transfer. *Journal of Studies in Technical Careers, 13*(Spring), 125-144.

Bragg, D. D. & Jacobs, J. (1991). *A conceptual framework for evaluating community college customized training programs* (MDS-175). Berkeley, CA: National Center for Research in Vocational Education.

Brand, B. (1997). *Community colleges and economic development.* Waco, TX: National Coalition of Advanced Technology Centers.

Breuder, R. L. (1988). Technology transfer and training: The critical challenge. *AACJC Journal, 59*(October/November), 30-33.

Brightman, R. W. (1982). *Revenue diversification: A new source of funds for community colleges.* (ERIC ED 221 251).

Brint, S. G. & Karabel, J. B. (1989). *The diverted dream.* New York, NY:

Oxford University Press.

Brookdale Community College. (1997a). *Automotive Service Educational Program.* Lincroft, NJ: Author.

Brookdale Community College. (1997b). *The right "key" that will open the door to a bright future for you.* Lincroft, NJ: Author.

Brooks, J. B., Joss, K. L., & Newsome, B. M. (1997). North Carolina's community colleges: The connection to the workforce. *Community College Journal of Research and Practice, 21,* 387-396.

Brown, C. (1997). Interview by Marianne F. Bakia with Manager, Supplier Training Center, Oakland Community College, Oakland, MI.

Brumbach, M. A. & McGee, E. A. (1995). Leveraged investments: Corporations and community colleges. *Community College Journal, 65*(August/September), 22-27.

Burger, L. T. (1984). The progress of partners. *Community College Journal, 55*(November), 36-39.

Canine, D. B. (1993). Federal funding for economic development and community colleges. In G. J. Ryan (Ed.), *Partners in economic development: Community college strategies for collaboration* (pp. 15-22). Washington, DC: American Association of Community Colleges.

Cantor, J. A. (1992). *Apprenticeship 2000: A model for community college collaboration with business and industry. Results of a national study involving three industries.* Paper presented at the Annual Meeting of the Eastern Educational Research Association, Hilton Head, SC. (ERIC ED 341 864).

Carmichael, J. B. (1991). Meeting small business needs through small business development centers. In G. Waddell (Ed.), *Economic and workforce development* (pp. 25-30). New Directions for Community Colleges, 75. San Francisco, CA: Jossey-Bass. (ERIC ED 335 107).

Catonsville Community College. (1993). *Skills today for tomorrow: A*

Workplace Literacy Consortium for the Printing Industry, March 1991-November 1992 final report. Catonsville, MD: Author. (ERIC ED 355 367).

Chaffin, R. & Edwards, R. (1989). Developing business/industry partnerships for the future: Virginia's response. *Community Services Catalyst, 19*(2), 30-31.

Choulochas, J. (1998). Interview by Kevin Dougherty with the former National Manager, College Programs, General Motors Automotive Service Education Program (ASEP), Seattle, WA.

Chrysler Corporation. (1996). *The Chrysler Dealer Apprenticeship Program.* Available online: http://www.chryslercorp.com/library/educational/cap.html

City College of San Francisco. (1997a). *Economic development plan for the California State Chancellor's office.* San Francisco, CA: Author.

City College of San Francisco. (1997b). *Final report and strategic plan.* San Francisco, CA: Author.

Claggett, C. A. (1995). *Maryland Community College Workforce Training Evaluation and Needs Assessment Survey.* Largo, MD: Maryland Association of Deans and Directors of Continuing Education/Community Service. (ERIC ED 384 376).

Clark, B. (1998). Interview by Kevin Dougherty with Director, Center for Training and Employer Services, Macomb Community College, Warren, MI.

Clemmons, D. T. (1998). Interview by Kevin Dougherty with Operations Manager, Huron Training and Development Center and Co-chair, Ford/UAW National Joint Apprenticeship Committee, Ford Motor Company, New Boston, MI.

Cohen, A. M. & Brawer, F. B. (1996). *The American community college* (3d ed). San Francisco, CA: Jossey-Bass.

Cousteau, J. (1997). Interview by Kevin Dougherty with Coordinator,

Auto Technology Program, Cuyamaca Community College, El Cajon, CA.

Cutler, E. (1984). Open for business. *Community College Journal, 55*(November), 28-30.

Dalton, M. (1998). Interview by Kevin Dougherty with Dean of Continuing Education, San Jacinto Community College, Pasadena, TX.

Deegan, W. L. & Drisko, R. (1985). Contract training: Progress and policy issues. *American Association of Community and Junior Colleges Journal, 55*(March), 14-17.

Demorris, R. (1997). Interview by Marianne Bakia with Manager, Human Resources, Aetna Industries, QQ, MI.

Derry, W. (1997). Interview by Kevin Dougherty with Auto Tech Coordinator, Broward Community College, Hollywood, FL.

Doucette, D. (1993). *Community college workforce training programs for employees of business, industry, labor and government: A status report.* Mission Viejo, CA: League for Innovation in the Community College.

Dougherty, K. J. (1994). *The contradictory college: The conflicting origins, outcomes, and futures of the community college.* Albany, NY: State University of New York Press.

Dougherty, K. J. & Etzkowitz, H. (1996). *The states and science: The politics of high technology industrial policy at the state level.* (Final report to the National Science Foundation). Riverdale, NY: Manhattan College.

Dozier, K. E. (1996). Ed>Net: The California community college approach to economic development. *Community College Journal, 66*(June/July), 15-18.

Dueweke, J. (1998). Interview by Kevin Dougherty with Workforce Development Specialist, Michigan Jobs Commission, Detroit, MI.

Duncan, J. (1999). Interview by Kevin Dougherty with Division Director, Construction Institute, Central Piedmont Community College, Charlotte, NC.

Eastern Iowa Community College District. (1992). *Labor market assessment of business computer programming personnel for the Eastern Iowa community college district.* Clinton, IA: Author. (ERIC ED 357 801).

Ehlers, L. (1997). Interview by Marianne Bakia with Manager, Craft Training, East Region, Fluor-Daniels Construction, Greenville, NC.

Eisinger, P. K. (1988). *The rise of the entrepreneurial state.* Madison, WI: University of Wisconsin Press.

Ernst, C. & Johnson, R. (1991). Planning and developing an ATC. *Community College Journal, 61*(October/November), 22-25.

Esbeck, T. (1993). *Economic development practices among small/rural community colleges.* Washington, DC: American Association of Community Colleges, Commission on Small/Rural Community Colleges.

Eskow, S. (1983). Putting America back to work: Phase II. *Community and Junior College Journal, 54*(November), 12-14.

Falcone, L. (Ed.) (1994). *The critical link: Community colleges and the workforce.* Washington, DC: American Association of Community Colleges.

Ferguson, R. F. & Ladd, H. F. (1988). Massachusetts. In R. S. Fosler (Ed.), *The new economic role of states* (pp. 21-87). New York, NY: Oxford University Press.

Ford Motor Company. (1997a). *The road to the future begins today.* Detroit, MI: Author.

Ford Motor Company. (1997b). *Where are you going to get your next Ford-trained technician?* Detroit, MI: Author.

Ford Motor Company. (1998). *RTI [Related Training Instruction] providers*. Detroit, MI: Author.

Fosler, R. S. (1988). *The new economic role of American states.* New York, NY: Oxford University Press.

Frazis, H. J., Herz, D. E., & Horrigan, M. W. (1995). Employer-provided

training: Results from a new survey. *Monthly Labor Review, 118*(5), 3-17.

Frazis, H. J., Gittleman, M., Horrigan, M., & Joyce, M. (1997). Formal and informal training: Evidence from a matched employee-employer survey. *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth, 9,* 47-82.

Frazis, H. J., Gittleman, M., Horrigan, M., & Joyce, M. (1998). Results from the 1995 survey of employer-provided training. *Monthly Labor Review, 121*(6), 3-13.

Garrison, D. C. (1985). On time, and winning. *Community and Junior College Journal, 55*(April): 54-56.

Gelberg, D. (1997). *The "business" of reforming American schools.* Albany, NY: State University of New York Press.

General Motors Corporation. (1997). *General Motors service training 1998 course catalog.*(GM 98-CAT). Detroit, MI: Author.

Gollattscheck, J. F. (1988). The AACJC and curriculum reform. In D. B. Wolf & M. L. Zoglin (Eds.), *External influences on the curriculum* (pp. 15-21). New Directions in Community Colleges, 64. San Francisco, CA: Jossey-Bass.

Grindel, J. (1997). Interview by Marianne Bakia with Interim Division Dean, Technology and Engineering, Cerritos Community College, Norwalk, CA.

Grubb, W. N., Badway, N., Bell, D., Bragg, D., & Russman, M. (1997). *Workforce, economic, and community development: The changing landscape of the 'entrepreneurial' community college.* Berkeley, CA: National Center for Research in Vocational Education.

Hall, R. (1998). Interview by Kevin Dougherty with Director, Business Services, Texas Workforce Development Commission, Austin, TX.

Harrison, D. (1997). Interview by Kevin Dougherty with Director, Advanced Integrated Manufacturing Center, Sinclair Community College, Dayton, OH.

Hayden, F. G. with Kruse, D., & Williams, S C. (1985). Industrial policy at the state level in the United States. *Journal of Economic Issues, 19*(June), 383-396.

Heffner, J. A. (1997). Interview by Marianne Bakia with Executive Director, Training and Educational Services, Association of General Contractors of America, Washington, DC.

Henderson, B. (1997). Interview by Marianne Bakia with Executive Director, Palm Beach County Chapter, Associated General Contractors, Palm Beach, FL.

Henry Ford Community College. (1998). *Sample skilled apprenticeship programs in auto manufacturing.* Dearborn, MI: Trade and Apprenticeship Education Division.

Hernandez-Gantes, V. M., Sorensen, R. P., & Nieri, A. J. (1996). *Fostering entrepreneurship through business incubation: The role and prospects of postsecondary vocational-technical education. Report 1: Survey of business incubator clients and managers.* (MDS-893). Berkeley, CA: National Center for Research in Vocational Education.

Hinckley, R. C. (1997). *Planning and developing the advanced technology center.* Waco, TX: National Coalition of Advanced Technology Centers.

Holdsworth, R. W. (1984). No shrinking violet. *Community and Junior College Journal, 55*(3), 24-27.

Holzer, H. (1990). The determinants of employee productivity and earnings. *Industrial Relations, 29*(3), 403-422.

Holzer, H. J., Block, R. N., Cheatham, M. E., & Knott, J. H. (1993). Are training subsides for firms effective? The Michigan experience. *Industrial and Labor Relations Review, 46*(July), 625-636.

Horrigan, M. (1999). Interview by Kevin Dougherty with Director, National Longitudinal Survey Program, U.S. Bureau of Labor Statistics,

Washington, DC.

Horton, S. (1997). Interview by Marianne Bakia with Associate Dean, Evening and Technical Education, San Jacinto Community College, Central Campus, Pasadena, TX.

Hudson Valley Community College. (1997). *1997-1998 catalog.* Troy, NY: Author.

Iowa Association of Adult and Continuing Education Deans and Directors. (1996). *Iowa workforce training study.* Ottumwa, IA: Author. (ERIC ED 400 438).

Irwin, J. (1998). Interview by Kevin Dougherty with the Director, Training Center Operations, General Motors, Detroit, MI.

Israel, P. (1998). Interview by Marianne Bakia with Coordinator, Safety and Health and Apprenticeship Training, Building and Construction Trades Department, AFL-CIO, Washington DC.

Jacobs, J. (1987). *Border scouting the new manufacturing technologies.* Paper presented to the 1987 convention of the American Association of Community Colleges. Ann Arbor, MI: Industrial Technology Institute. (ERIC ED 283 584).

Jacobs, J. (1992). *Customized training in Michigan: A necessary priority for community colleges.* Warren, MI: Macomb Community College, Center for Community Studies.

Jacobs, J. (1995). Rock Valley college (Illinois): A community college commitment to manufacturing. In S. A. Rosenfeld (Ed.), *New technologies and new skills* (pp. 97-105). Chapel Hill, NC: Regional Technology Strategies.

Jacobs, J. (1997). Interview by Kevin Dougherty and Marianne Bakia with Associate Vice President for Community and Employer Services, Macomb Community College, Warren, MI.

Jacobs, J. (1998). *Macomb County annual economic review and forecast.*

Warren, MI: Macomb Community College, Center for Community Studies.

Johnson, S. L. (1995). *Organizational structure and the performance of contract training operations in American community colleges.* Doctoral Dissertation, University of Texas, Austin. (UMI #9617 260).

Jones, D. (1997). Interview by Marianne Bakia with Manager, Craft Training and Development, Western Division, Fluor-Daniel Construction, Deer Park, TX.

Katsinas, S. G. (1994). Community colleges and workforce development in the new economy. *Community Services Catalyst, 24*(Winter), 9-20.

Katsinas, S. G. & Lacey, V. A. (1989). *Community colleges and economic development: Models of institutional effectiveness.* Washington, DC: American Association of Community Colleges.

Katsinas, S. G. & Lacey, V. A. (1990). Community colleges and economic development. *Community Services Catalyst, 20* (Winter), 6-14.

Katsinas, S. G., Bliss, T. J., & Short, J. M. (1995). *A study of community college participation in the JOBS program: A report to America's community colleges.* Toledo, OH: University of Toledo, Department of Educational Leadership. (ERIC ED 399 979).

Kent, N. (1991). Partners for the future: Business and community colleges team up. *Community College Journal, 61*(February-March), 31-35.

Knox, R. J. & Lorenzo, A. L. (1987). *'Service wars': The race to be the best in product service.* Paper presented to the 1987 annual convention of the AACC. Warren, MI: Macomb Community College. (ERIC ED 282 603).

Kopecek, R. J. (1984). Customized job training: Should your community college be involved? In R. J. Kopecek. & R. G. Clarke (Eds.), *Customized job training for business and industry.* New Directions for Community Colleges, 48. San Francisco, CA: Jossey-Bass.

Krueger, A. & Rouse, C. (1996). *The effect of workplace education on*

earnings, turnover, and job performance. Princeton, NJ: Princeton University, Center for Economic Policy Studies.

Labaree, D. (1997). *How to succeed in school without really trying: The credentials race in American education.* New Haven, CT: Yale University Press.

Laguna, C. (1998). Interview by Kevin Dougherty with Executive Director, South Florida Chapter, American Institute of Banking, Miami, FL.

Lawson, D. (1998). Interview by Marianne Bakia with Training Director, North Texas Joint Apprenticeship Training Committee, United Brotherhood of Carpenters, Arlington, TX.

Light, D. (1998). Interview by Marianne Bakia with National Training Director, United Brotherhood of Carpenters, Washington, DC.

Lillard, L. A. & Tan, H. W. (1992). Private sector training: Who gets it and what are its effects? In R. Ehrenberg (Ed.), *Research in labor economics* (v. 13). Greenwich, CT: JAI Press.

Lynch, L. (1992). Private-sector training and the earnings of young workers. *American Economic Review*, *82*(1), 299-312.

Lynch, R., Palmer, J. C., & Grubb, W. N. (1991). *Community college involvement in contract training and other economic development activities.* (MDS-379). Berkeley, CA: National Center for Research in Vocational Education.

Macomb Community College. (1998). *Sample skilled apprenticeship programs in auto manufacturing.* Warren, MI: Applied Technology Division.

McAlinden, S. P., Smith, B. S, & Cole, D. E. (1995). *Driving America's renaissance: Human resources issues in Michigan's automotive industry.* (UMTRI-95-37). Ann Arbor, MI: University of Michigan, Transportation Research Institute.

McDougal, T. (1998). Interview by Kevin Dougherty with Assistant Director for Labor Relations, GM Operations; Co-chair, GM/UAW National Joint

Apprenticeship Committee, Detroit, MI.

McGuire, W. G. (1984). Worker education for improved productivity: The role of New York State community college contract courses. In R. J. Kopecek & R. Clarke (Eds.), *Contract job training for business and industry* (pp. 67-74). New Directions for Community Colleges, 48. San Francisco, CA: Jossey-Bass.

McNeil, R. (1998). Interview by Marianne Bakia with Dean, Business and Economic Development, Los Angeles Trade-Technical College, Los Angeles, CA.

Melville, J. G. & Chmura, T. J. (1991). Strategic alignment of community colleges and state economic development. In G. Waddell (Ed.), *Economic and workforce development* (pp. 7-15). New Directions for Community Colleges, 75. San Francisco, CA: Jossey-Bass. (ERIC ED 335 107).

Merwin, H. G. (1998). Interview by Kevin Dougherty with President, Automotive Service Association, Bedford, TX.

Meyer, J. W. (1970). The charter: Conditions of diffuse socialization in school. In W. R. Scott (Ed.), *Social processes and social structure* (pp. 564-578). New York, NY: Holt, Rinehart, and Winston.

Metchek, I. (1998). Interview by Marianne Bakia with Director, California Fashion Association, Los Angeles, CA.

Michigan Jobs Commission. (1997). *Michigan manufacturing technology center*. Lansing, MI: Author.

Michigan Jobs Commission. (1998). *Economic development jobs training program.* Lansing, MI: Author.

Mincer, J. (1991). Job training: Costs, returns, and wage profiles. In Stern, D. & Ritzen, J. M. M. (Eds.), *Market failure in training?* Berlin: Springer-Verlag.

Molnar, L. A., DePietro, R., & Gillette, L. (1996). *Sustaining economic growth: The positive impact of the Michigan incubator industry, 1985-1995.* Athens, OH: National Business Incubation Association.

Mosser, D. (1997). Interview by Marianne Bakia with Director of Education, Associated Builders and Contractors, Rosslyn, VA.

Mott Community College. (1998). *Sample skilled apprenticeship programs in auto manufacturing.* Flint, MI: Author.

National Business Incubation Association. (1992). *The state of the business incubation industry, 1991.* Athens, OH: Author.

National Council for Occupational Education. (1990). *Productive America: Two-year colleges unite to improve productivity in the nation's workforce.* Washington, DC: American Association of Community Colleges. (ERIC ED 317 224).

Nespoli, L. A. (1991). Investing in human capital: State strategies for economic development. In G. Waddell (Ed.), *Economic and workforce development* (pp. 17-24). New Directions for Community Colleges, 75. San Francisco, CA: Jossey-Bass.

Network (America's Two-Year College Employment, Training, and Literacy Consortium). (1990). *Results of the 1989-90 Network survey of two-year college involvement in employment, training, and literacy.* Cleveland, OH: Author. (ERIC ED 330 380).

Novick, L. (1998). Interview by Kevin Dougherty with Director, Small Business Development Center, Brookdale Community College, Lincroft, NJ.

Noyelle, T. (1990). Toward a new labor market segmentation. In T. Noyelle (Ed.), *Skills, wages, and productivity in the service economy* (pp. 212-224). San Francisco, CA: Westview Press.

Olson, C. (1977). *Community and junior colleges and the comprehensive employment and training act: Participation and recommendations for improvement*. Washington, DC: American Association of Community Colleges. (ERIC ED 148 405).

Osborne, D. (1990). *Laboratories of democracy.* Boston, MA: Harvard

Business School Press.

Osterman, P. (1994). How common is work place transformation and who adopts it? *Industrial and Labor Relations Review, 47*(January), 173-188.

Owen, J. J. (1984). In R. J. Kopecek & R. Clarke (Eds.), *Contract job training for business and industry* (pp. 55-66). New Directions for Community Colleges, 48. San Francisco, CA: Jossey-Bass.

Owen, T. (1998). Interview by Marianne Bakia with Director, Western New York region, American Institute of Banking, Buffalo, NY.

Palmer, J. C. (1990). *How do community colleges serve business and industry? A review of issues discussed in the literature*. Washington, DC: American Association of Community Colleges. (ERIC ED 319 443).

Parkhill, T. (1998). Interview by Kevin Dougherty with Assistant Director, Joint Training Activities, UAW-GM Center for Human Resources, Auburn Hills, MI.

Parnell, D. & Yarrington, R. (1982). *Proven partners: Business, labor, and community colleges.* Washington, DC: American Association of Community Colleges.

Perry, G. (1997). Interview by Marianne Bakia with Education Director, Central Florida Chapter, Associated Builders and Contractors, Winter Park, FL.

Peterson, B. (1997). Interview by Marianne Bakia with Member, Skilled Trades Department, United Auto Workers, Detroit, MI.

Pickar, G. (1998). Interview by Kevin Dougherty with Dean, Economic and Community Development, Seminole Community College, Sanford, FL.

Pincus, F. L. (1989). Contradictory effects of customized contract training in community colleges. *Critical Sociology, 6*(Spring), 77-93.

Ponitz, D. (1989). Community colleges can help American manufacturing be more competitive. *AACJC Journal, 59*(February/March).

Pope, A. (1998). Interview by Kevin Dougherty with Government

Resources Executive, Chrysler Corporation, Detroit, MI.

Ramirez, K. M. (1989). *Economic development and the role of community colleges: Contract education in review.* Sacramento, CA: California Association of Community Colleges. (ERIC ED 326 277).

Rand, G. (1989). Shared resources: Working both ways with business and industry. *Community College Journal,* (February/March), 34-36.

Ray, R. (1997a). Interview by Marianne Bakia with Education Director, Workforce Development and School-to-Work, National Center for Construction Education and Training, Gainesville, FL.

Ray, R. (1997b). *What does the NCCER have to do with education?* Gainesville, FL: National Center for Construction Education and Research.

Regional Technology Strategies. (1999). *A comprehensive look at state-funded, employer-focused job training programs.* Washington, DC: National Governors' Association.

Reyes, G. (1977). CETA: A community college perspective. *Adult Leadership, 25*(February), 176-177.

Roberts, B. (1993). Community college role: A state perspective. *Community Services Catalyst, 23*(3), 6-8.

Ruiz, A. R., Carreon, J., & Smith, H. (1987). JTPA and the community college: The development of a new training relationship. In K. D. Yglesias (Ed.), *Community colleges and JTPA: Issues and programs* (pp. 2-4). Fountain Valley, CA: Coastline Community College. (ERIC ED 289 542).

Ryan, G. J. (Ed.) (1993). *Partners in economic development: Community college strategies for collaboration.* Washington, DC: American Association of Community Colleges.

Saganski, G. (1997). Interview by Marianne Bakia with Director, Corporate Training, Henry Ford Community College, Dearborn, MI.

Sasser-Watkins, J. (1998). Interview by Marianne Bakia with Project

Manager, Garment 2000, Community College of San Francisco, San Francisco, CA.

Saxton, D. (1998). Interview by Marianne Bakia with Corporate Trainer, Workforce Development Office, Erie Community College, Buffalo, NY.

Schiorring, E. (1998). Interviews by Marianne Bakia and Kevin Dougherty with Consultant, San Francisco School-to-Career Initiative, City College of San Francisco, San Francisco, CA.

Scott, R. (1987). Proven partners: Business, government, and education. *Community and Junior College Journal, 57*(December/January), 16-19.

Sillars, S. (1999). Interview by Kevin Dougherty with Training Director, Tri-Cities Joint Apprenticeship Training Committee, International Brotherhood of Electrical Workers, Albany, NY.

Skocpol, T. (1985). Bringing the state back in. In P. Evans, D. Rueschemeyer, & T. Skocpol (Eds.), *Bringing the state back in* (pp. 3-25). New York, NY: Cambridge University Press.

Smith, E. B. (1991). Responding to industry demands: Advanced technology centers. *Community College Journal, 61*(October/November), 18-21.

Somers, J. (1999). Interview by Kevin Dougherty with Assistant Business Manager, International Brotherhood of Electrical Workers local, Fort Lauderdale, FL.

Sommerstorfer, H. (1997). Interview by Kevin Dougherty with Administrator, Designer Development Group, General Motors Trucks, State University of New York, 19QQ, Non-Credit Instructional Activities, Albany, NY: Author. (ERIC ED 375 742).

Stilley, M. (1997). Interview by Marianne Bakia with Corporate Director of Education, B, E, & K Construction, Birmingham, AL.

Sugarman, B. (1992). Technology transfer and the community college: A new model. *Community/Junior College Quarterly, 16,*177-188.

Task Force on the Role of Community Colleges in Economic Development. (1988). Community colleges and economic development. *Journal of Studies in Technical Careers, 10*(2), 91-106.

Tate, S. (1998). Interview by Marianne Bakia and Kevin Dougherty with Dean, Academic Affairs, Los Angeles Trade and Technical College, Los Angeles, CA.

Teitel, L. (1988). *The impact of business and industry oriented programs on community colleges.* Doctoral Dissertation, Harvard University, Boston, MA. (UMI Order # 8823 357).

Teitel, L. (1991). The transformation of a community college. *Community College Review, 19*(Summer), 7-13.

Teng, J. (1999). Interview by Kevin Dougherty with Dean of Continuing Education and Contract Education, San Francisco City College, San Francisco, CA.

Tesinsky, S. (1997, 1998). Interviews by Marianne Bakia and Kevin Dougherty with Director, Workforce Development, Seminole Community College, Sanford, FL.

Thomas, M. G. (1989). *A portfolio of community college initiatives in rural economic development.* Kansas City, MO: Midwest Research Institute.

Tornholm, B. (1998). Interview by Kevin Dougherty with Director, Economic Development Job Training, Michigan Jobs Commission, Lansing, MI.

Tortorici, V. (1998). Interview by Kevin Dougherty with Chair, English Department, Hudson Valley Community College, Troy, NY.

Tough, K. (1997). Interview by Kevin Dougherty with the National Manager, College Programs, General Motors Automotive Service Education Program (ASEP), Detroit, MI.

U.S. Bureau of Labor Statistics. (1996). *Employment by industry and occupation, 1994 and projected 2005 alternatives: Apparel and other textile*

products. Washington, DC: Government Printing Office.

U.S. Census Bureau. (1997). *Statistical abstract of the United States, 1997.* Washington, DC: Government Printing Office.

U.S. Census Bureau. (1998a). *Statistical abstract of the United States, 1998.* Washington, DC: Government Printing Office.

U.S. Census Bureau. (1998b). *County business patterns.* Washington, DC: Government Printing Office.

U.S. National Center for Education Statistics. (1997). *The condition of education, 1997.* Washington, DC: Author.

Van Horn, C., Fichtner, A., Dautrich, K., Hartley, T, & Hebbar, L. (1998). *First-year interim report, evaluation of the workforce development partnership program: Executive summary.* New Brunswick, NJ: Rutgers University, Heldrich Center for Workforce Development.

Vandermark, G. (1997). Interview by Kevin Dougherty with, Dean of Career and Technical Education, Mott CC, Flint, MI.

Waddell, G. (1990). Tips for training a world-class work force. *Community College Journal, 60*(February/March), 22-27.

Weidman, B. H. (1992). *The current status of two-year construction education management programs.* Doctoral dissertation, Colorado State University. (UMI # 9231 836).

Wells, D. (1998). Interview by Marianne Bakia with Provost, Tarrant County Community College, Fort Worth, TX.

Whooley, D. (1999). Training Director, Northern California Joint Apprenticeship Training Committee, International Brotherhood of Electrical Workers, San Francisco, CA.

Williams, D. (1997). Interview by Kevin Dougherty with Dean, Vocational and Technical Education, Rock Valley Community College, Rockford, IL.

Wilson, J. (1981). *A study of the relationship between postsecondary education and economic development in selected states.* Phoenix, AZ: Arizona Office of Economic Planning. (ERIC ED 215 649).

Winter, G. M. & Fadale, L. M. (1990). Impact of economic development programs in SUNY community colleges: A study of contract courses. *Community Services Catalyst, 20*(2), 3-7.

Wismer, J. N. & Zappala, J. (1993). *Michigan community college workforce training programs.* Lansing, MI: Michigan Community College, Service Association and Michigan Community College Association.

Wood, B. (1997). Interview by Marianne Bakia with Dean, Contract Education and Economic Development, Chabot College, Hayward, CA.

Yancey, P. (1998). Interview by Kevin Dougherty with director, automotive department, San Jacinto Community College, Houston, TX.

Zeiss, T. & Associates. (1997). *Developing the world's best labor force.* Washington, DC: Community College Press.

APPENDIX A: COMMUNITY COLLEGES STUDIED

Community College	Location	Visited?	Industry Connection Explored*
	New York		
Borough of Manhattan CC	New York City	Yes	Ap, B
Erie Community College	Buffalo		B
Hudson Valley Comm. Coll.	Troy (near Albany)		AR, C
	New Jersey		
Brookdale Community College	Lincroft (Jersey shore)	Yes	AR
	Florida		
Broward Community College	Fort Lauderdale		AR
Miami-Dade Community College	Miami		B
Seminole Community College	Sanford (near Orlando)		AR, C
	Texas		
El Paso Community College	El Paso		Ap
Houston Community College	Houston		Ap
San Jacinto Community College	Pasadena (near Houston)		AR, C
Tarrant County Junior College	Fort Worth		B
	Michigan		
Henry Ford Community College	Dearborn (near Detroit)		AM
Macomb Community College	Warren (near Detroit)		AM, C
Mott Community College	Flint (near Detroit)		AM
Oakland Community College	Bloomfield Hills (near Detroit)		AM
	Ohio		
Sinclair Community College	Dayton		AM
	Illinois		
Harold Washington CC	Chicago		Ap
Rock Valley Community College	Rockford (northern IL)	Yes	AM
	California		
Cerritos College	Norwalk (near L.A.)	Yes	AR, C
Chabot College	Hayward (near S.F.)		C
San Francisco City College	San Francisco		Ap, B
Cuyamaca College	El Cajon (San Diego)		AR
L.A. Trade-Tech College	Los Angeles	Yes	Ap, C
San Jose Junior College	San Jose (Bay Area)	Yes	Electronics

- AM—auto manufacturing
- Ap—apparel-making
- AR—auto repair
- B—banking
- C—construction

APPENDIX B: PERSONS INTERVIEWED

Apparel Making

Barrs, Linda. 1998. Program Chairperson, Applied Design and Marketing and Professor of Fashion Marketing, Florida Community College. Jacksonville, FL.

Buttenhoff, Peter. 1998. President, Textile/Clothing Technology Center. Cary, NC.

Coglin, Ginny. 1998. Staffer, national headquarters, Union of Needle and Trades, Industrial and Textile Employees (UNITE). New York, NY.

Curtis, Nina. 1998. Dean of Business and Technology, Fashion Institute of Technology. New York City.

Dworak, Linda. 1998. Director, Training and Education, Garment Industry Development Corporation. New York City.

Engels, Anne. 1998. Director, Education and Conventions, American Apparel Manufacturing Association. Washington, DC.

Fralix, Michael. 1998. Corporate Vice President and Director of Industry Relations, Textile and Clothing Training Corporation. Cary, NC.

Harry, John. 1998. Director of Contracts, Sewn Products Technology Center, Chicago Manufacturing Center. Chicago, IL.

Hutton, Sandra. 1998. Executive Director, International Textile and Apparel Association. Monument, CO.

Ingalls, Diane. 1998. American Apparel Manufacturers' Association.

King, Kay. 1998. Chair, Fashion and Interior Design, Houston Community College. Houston TX.

Quan, Katie. 1998. Former International Vice President, Union of Needle and Trades, Industrial and Textile Employees (UNITE). Berkeley, CA.

Maldonado, Octe. 1998. Dean, Continuing Education, Borough of Manhattan Community College. New York, NY.

Metchek, Ilse. 1998. Director, California Fashion Association. Los Angeles, CA.

Sasser-Watkins, Judy. 1998a. Project Manager, Garment 2000, Community College of San Francisco. San Francisco, CA.

Schiorring, Eva. 1998. Consultant, San Francisco School to Career Initiative, City College of San Francisco. San Francisco, CA.

Stefatos, Sophia. 1998. Program Director, Worker Education, Union of Needle and Trades, Industrial and Textile Employees (UNITE). New York, NY.

Tate, Sharon. 1998. Dean, Academic Affairs, Los Angeles Trade and Technical College. Los Angeles, CA.

Walker, Lynn. 1998. Dean of Public Agency and Special Programs, Office of Continuing Education, Harold Washington Community College. Chicago, IL.

Winstead, Tricia. 1998. Director, Fashion Technology Program, El Paso Community College. El Paso, TX.

Auto Manufacturing

Allard, Ed. 1998. Director, Trade and Apprenticeship Education Division, Henry Ford Community College. Dearborn, MI.

Blum, Joe. 1998. UAW representative, Joint Apprenticeship Committee for GM Tech Center-Local 160 UAW. Warren, MI.

Brown, Carolyn. 1997. Manager, Supplier Training Center, Oakland Community College. Bloomfield Hills, MI.

Clark, Barbara. 1998. Director, Center for Training and Employer Services, Macomb Community College. Warren, MI.

Clemmons, Douglas T. 1998. Operations Manager, Huron Training and Development Center and co-chair, Ford/UAW national joint apprenticeship

committee, Ford Motor Company. New Boston, MI.

Demorris, Randy. 1997. Manager, Human Resources, Aetna Industries. Warren, MI.

Dueweke, Joseph. 1998. Workforce Development Specialist, Michigan Jobs Commission. Detroit, MI.

Harrison, David. 1997. Director, Advanced Integrated Manufacturing Center, Sinclair Community College. Dayton, OH.

Irish, Norman. 1998. Manager, Management Education, Chrysler Corporation, Auburn Hills, MI.

Jacobs, James. 1997. Associate Vice President, Macomb Community College. Warren, MI.

McAlinden, Sean. 1998. Senior Research Associate, Office for the Study of Automotive Transportation, Transportation Research Institute, University of Michigan. Ann Arbor, MI.

McDougal, Terry. 1998. Assistant Director for Labor Relations, GM Operations. Detroit, MI.

Parkhill, Thomas. 1998. Assistant Director, Joint Training Activities, UAW-GM Center for Human Resources. Auburn Hills, MI.

Peterson, Bill. 1997. Staffer, Skilled Trades Department, United Auto Workers. Detroit, MI.

Pope, Al. 1998. Government Resources Executive, Chrysler Corporation. Detroit, MI.

Saganski, Gary. 1997. Director, Corporate Training, Henry Ford Community College. Dearborn, MI.

Senska, Walt. 1998. Coordinator, applied technology program. Macomb Community College. Warren, MI.

Sommerstorfer, Henry. 1997. Administrator, Designer Development Group, General Motors Trucks.

Tornholm, Barbara. 1998. Director, Economic Development Job Training, Michigan Jobs Commission. Lansing, MI.

Vandermark, Gary. 1997. Dean of Career and Technical Education, Mott Community College. Flint, MI.

Williams, Don. 1997. Dean for Vocational and Technical Education. Rock Valley Community College. Rockford, IL.

Auto Repair

Ashley, Dan. 1997. Chair, automotive training department, Hudson Valley Community College. Troy, New York.

Atwood, David. 1998. Director, Ford North America Training Center. Detroit, MI.

Boyes, Rod. 1997. President, International Automotive Service Institute. Birmingham, Alabama.

Choulochas, John. 1998. Former National Manager, College Programs, General Motors Automotive Service Education Program (ASEP). Seattle, Washington.

Cousteau, Jim. 1997. Coordinator, Auto Technology Program, Cuyamaca Community College. El Cajon, CA.

Derry, William. 1997. Coordinator, Auto Technology, Broward Community College. Hollywood, FL.

Dew, Donald. 1997. Director of Special Projects, National Automotive Technicians Education Foundation. Herndon, VA.

Irwin, James. 1998. Director, Training Center Operations, General Motors. Detroit, MI.

Jacobs, James. 1997. Associate Vice President for Community and Employer Services, Macomb Community College. Warren, MI.

Lynch, Marilyn Kolesar. 1997. Dean, Technical and Occupational

Programs, Brookhaven Community College. Dallas, TX.

Merwin, H.G. (Bud). 1998. President, Automotive Service Association. Bedford, TX.

Peacock, Lin. 1997. Executive Director, Dealership Operations/20 Group, National Automobile Dealers Association. McLean, VA.

Tough, Ken. 1997. National Manager, College Programs, General Motors Automotive Service Education Program (ASEP). Detroit, MI.

Yancey, Pat. 1998. Director, automotive department. San Jacinto Community College, Houston, TX.

Banking

Collier, Jeb. 1998. American Institute of Banking. Washington, DC.

Edmonds, David L. 1998. Director, Tarrant County Junior College Small Business Center. Fort Worth, TX.

Gabriner, Robert. 1998. Director, Institutional Development, Research, and Planning. City College of San Francisco. San Francisco, CA.

Jue, Graham. 1998. Marketing Manager, Contract Education Office, City College of San Francisco. San Francisco, CA.

Laguna, Connie. 1998. Executive Director, South Florida Chapter, American Institute of Banking. Miami, FL.

Murphy, Cynthia. 1998. Dean, Continuing Education, Borough of Manhattan Community College. New York, NY.

Owen, Thomas. 1998. Director, Western New York region, American Institute of Banking. Buffalo, NY.

Proulx, Gina. 1998. Vice President for Academic Affairs, Erie Community College. Buffalo, NY.

Rumayer, Sandra. 1998. Staffer, Borough of Manhattan Community College. New York, NY.

Saxton, Douglas. 1998. Corporate Trainer, Workforce Development Office, Erie Community College. Buffalo, NY.

Sefcik, Debbie. 1998. Executive Director, Arkansas American Institute of Banking. Little Rock, AR.

Shu, Hilary. 1998. Director, banking program, City College of San Francisco. San Francisco, CA.

Vanderworken, Karen. 1998. Executive Director, American Institute of Banking, North Texas Chapter. Forth Worth, TX.

Wells, David. 1998. Provost, Tarrant County Community College. Fort Worth, TX.

Woelfing, Janet. 1998. Vice President, Branch Administration, Western New York, Key Bank. Buffalo, NY.

Wright, Ann. 1998. Oregon Bankers Association and Secretary-Registrar of Western Bankers Schools. Salem, OR.

Construction

Armstrong, George M. 1997. Coordinator, Technical and Professional Training, Continuing Education Division, Hudson Valley Community College. Troy, NY.

Benson, Thomas. 1998. Director, Carpenters Joint Apprenticeship and Training Committee Fund for Southern California. Los Angeles, CA.

Botkins, Mike. 1997. Workforce Development Coordinator, Fluor-Daniel 4A/5A/6A Construction Project for Procter and Gamble. Albany, GA.

Dupree, Daniel E. 1998. Executive Vice President, American Council for Construction Education. Monroe, LA.

Ehlers, Leroy. 1998. Manager, Craft Training, East Region, Fluor-Daniels Construction. Greenville, NC.

Eisner, Jerry. 1998. Executive Vice President, Greater Fort Worth

Builders Association. Fort Worth, TX.

Grindel, John. 1997. Interim Division Dean, Technology and Engineering, Cerritos Community College. Norwalk, CA.

Heffner, John A. 1998. Executive Director, Training and Educational Services, Association of General Contractors of America. Washington, DC.

Henderson, Barkely. 1997. Executive director, Palm Beach County chapter, Associated General Contractors. Palm Beach, FL.

Horton, Steve. 1998. Associate Dean, Evening and Technical Education, San Jacinto Community College, Central Campus. Pasadena, TX.

Hutton, Sandra. 1998. Building and Construction Trades Department of the AFL-CIO. Washington, DC.

Israel, Phyllis. 1998. Coordinator, Safety and Health and Apprenticeship Training, Building and Construction Trades Department, AFL-CIO. Washington DC.

Johnson, Bob. 1998. Interim Division Dean, Technology and Engineering, Chabot College. Hayward, CA.

Jones, Dickey. 1997. Manager, Craft Training and Development, Western Division, Fluor-Daniel Construction. Deer Park, TX.

Lawson, David. 1998. Training Director, North Texas Joint Apprenticeship Training Committee, United Brotherhood of Carpenters. Arlington, TX.

Light, Dudley. 1998. National Training Director, United Brotherhood of Carpenters. Washington, DC.

McNeil, Robert. 1998. Dean, Business and Economic Development, Los Angeles Trade-Technical College. Los Angeles, CA.

Mosser, Daniel. 1997. Director of Education, Associated Builders and Contractors. Rosslyn, VA.

Perry, Gene. 1997. Education Director, Central Florida Chapter,

Associated Builders and Contractors, Winter Park, FL.

Picar, Gloria. 1998. Dean, Economic and Community Development, Seminole Community College. Sanford, FL.

Ray, Richard. 1998. Education Director, Workforce Development and School to Work, National Center for Construction Education and Training. Gainesville, FL.

Sanders, Brenda. 1998. Director, Advanced Education, Home Builders Institute. Washington DC.

Sillars, Stuart. 1999. Training Director, Tri-Cities Joint Apprenticeship Training Committee, International Brotherhood of Electrical Workers. Albany, NY.

Somers, John. 1999. Assistant Business Manager, International Brotherhood of Electrical Workers local. Fort Lauderdale, FL.

Stilley, Michael. 1998. Corporate Director of Education, B, E, & K Construction. Birmingham, AL.

Tesinsky, Suzanne. 1998. Director, Workforce Development, Seminole Community College. Sanford, FL.

Tornholm, Barbara. 1998. Director, Economic Development Job Training, Michigan Jobs Commission. Lansing, MI.

Whooley, Dan. 1999. Training Director, Northern California Joint Apprenticeship Training Committee, International Brotherhood of Electrical Workers. San Francisco, CA.

Wood, Bob. 1997. Dean, Contract Education and Economic Development, Chabot College. Hayward, CA.

ENDNOTES

[1] Our main difference from the definitions offered by the American Association of Community Colleges (1993) and Grubb et al. (1997) is that we do not require the employer role to be as determinative as they do. For example, Grubb et al. state that the employer specifies the course content and selects the individuals to be enrolled, while we put it that the employer has a major voice.

[2] We arrived at our estimate as follows. In his nationwide survey of two-year colleges in 1993-94, Johnson (1995) found that 427 of his 480 respondents offered contract training. The median number of contract training students at these 427 colleges was 1,125 and the median headcount credit enrollments for students of all types was 4,413. However, this figure does not include noncredit enrollments. Such figures are not available from the National Center of Education Statistics, though there are plans to collect them. To estimate noncredit enrollments nationwide, we examined enrollment reports for fall 1993 for the states of California, Washington, Illinois, Maryland, and New York. (We also looked for, but could not find, noncredit enrollments for Florida, Texas, and Michigan.) We found that their ratios of total headcount enrollments to credit headcount enrollments were, respectively, 1.16, 1.24, 1.66, 1.96, and 1.68. The unweighted average therefore was 1.54. If we weight the ratio for a given state by the percentage of the total enrollments of these five states together that it accounts for, we get a weighted average of 1.40. If we multiply the median headcount credit enrollments reported by Johnson (4,413) by either 1.40 or 1.54, we arrive at a median total (credit and noncredit) enrollment of between 6,178 and 6,796. Dividing the median contract-training enrollment (1,125) by these figures for total enrollments, we arrive at an estimate that contract-training enrollments are around 17 percent or 18 percent of total enrollments at the median two-year college offering contract training.

[3] Federally registered apprentice programs have to involve a minimum of 2,000 hours of on the job instruction and 144 hours a year of related (classroom) instruction. Typically, this will require about a year. However, the apprenticeships in auto manufacturing, construction, and auto repair run longer than that.

[4] One difference between the auto repair programs and the auto manufacturing craft apprenticeships is that the former last two years rather than four. Also, auto repair trainees do not do both on-the-job and classroom training at the same time. Rather, they alternate between several

weeks devoted to classroom training alone, followed by as many weeks devoted exclusively to on the job training at the dealership sponsoring a student.

[5] Industry sponsored programs tend to be more common than ones sponsored by joint apprenticeship training committees (JATC's), because the craft unions have receded in importance and because the JATC's tend to rely a lot on providing their own classroom training or using vocational schools (Henderson, 1997; Horton, 1998; Israel, 1998; Sillars, 1999; Somers, 1999; Tesinsky, 1997).

[6] Union/management joint apprenticeship training committees on occasion establish relationships with community colleges that are so minimal as not to constitute training. The community college simply gives academic credit for union training so that apprentices can go on to get an associate's degree (Armstrong, 1997, 1998; Benson, 1998; Israel, 1998).

[7] For more on this "relative autonomy of the state" perspective, as applied to the rise and later vocationalization of the community college, see Dougherty (1994).

[8] Moreover, on a day to day basis, top business people in North Carolina are routinely consulted by the heads of the community college system and business executives usually hold several seats on the State Board of Community Colleges (Holdsworth, 1984; Scott, 1987).

[9] Similarly, a national survey of firms that had contracted with community colleges for training found that, while nearly 58 percent of the firms rated "technical skills" as "needed" or "much needed," large numbers also frequently rated soft skills as important. "Interpersonal skills" were rated as needed or much needed by 80 percent of the responding firms. And the ratings for "communication skills" and "critical thinking skills" were 74 percent and 75 percent, respectively (Zeiss & Associates, 1997).

[10] This concern about rising skill demands took on particular urgency in the auto repair industry. The skills of auto mechanics had fallen way behind the rapidly rising technological complexity of cars, causing repairs to take longer and more often requiring several visits to a shop. This greatly worried the U.S. auto makers because a bad repair experience would often sour a customer on that particular make of car. And this occurred while Japanese and other car manufacturers were rapidly cutting into the market share of the U.S. carmakers.

[11]The 1995 BLS survey of employer training demand found that, while 31% of establishments with more than 500 employees had increased their full-time training staff over the past three years, 20% had cut their staff. Yet at the same time, only 6% of those large

establishments were reporting that fewer of their employees were receiving formal training (Frazis et al., 1997, p. 78).

[12] The other choices offered were "quality of instruction," "community college customized training program for our needs," "convenience: provided training at on-site business location," "training program(s) referred to us by other businesses," and "contracted with community college in past with satisfactory results." This survey has the virtue of covering 2,473 business clients of 104 community colleges nationwide. However, its results need to be taken with caution. The firms surveyed were clients named by the community colleges themselves, raising the issue of selection bias. Moreover, while the response rate for client firms was decent (53 percent), it was very uneven, with the number of employer responses per college ranging between 3 and 145, with an average of 24. Finally, the 104 colleges are not a random sample. While 15 out of 17 Iowa colleges are represented, the representation is poor for such states as California (one of 105 shows up in the sample) and Texas (6 of 63) (American Association of Community Colleges, 1997; Zeiss & Associates, 1997). However, surveys of employers in Michigan, Maryland, and Iowa also found that the top reason given by employers was cost effectiveness (Claggett, 1995; Iowa Association of Adult and Continuing Education Deans and Directors, 1996; Wismer & Zappala, 1993; Zeiss & Associates, 1997).

[13] State and local aid accounted for 56 percent of community college revenues in 1994 (American Association of Community Colleges, 1997).

[14] Furthermore, according to the survey authors, 92 percent of the open-ended comments on the subject of the responsiveness of the community college were favorable, citing such things as the flexibility of the instructors, the quick turnaround time for program design and implementation, and the willingness of the colleges to offer programs when, where, and how the employers wanted (Zeiss & Associates, 1997).

[15] This shift away from "smokestack chasing" reflected a growing body of research that indicated that stealing plants from other states was an expensive and not very effective strategy (Eisinger, 1988; Fosler, 1988; Osborne, 1990). The bulk of new job creation was in business establishments with less than 20 employees. They accounted for 66 percent of new jobs created 1969-1977 and 51 percent of new jobs created in 1977-1981, although they accounted for only 20 percent of existing jobs in 1977-1981. However, it should be noted that only 12-15 percent of small businesses are responsible for creating all net job growth in this sector (Eisinger, 1988; Hayden with Krause & Williams, 1985).

[16] Community colleges on occasion have gotten grants—from the Economic Development Administration of the Commerce Department or the Urban Development Action Grant—that fund the development of facilities in which current employees will be trained (Canine, 1993).

[17] This high level of involvement with federal training programs has continued to the present. In three national surveys between 1989 and 1994, three-quarters of community colleges reported that they have done work for JTPA and 52 percent said they were operating Job Opportunities and Basic Skills (JOBS) welfare to work programs (Katsinas et al., 1995; Lynch et al., 1991; Network, 1990).

[18] Because they were aware of the importance of ties to Private Industry Council members, community colleges made sure in many cases to get a community college official on their local PIC. For example, in 1994, 61 percent of community colleges surveyed nationally indicated that one of their staffers sat on the local PIC (Katsinas et al., 1995).

[19] This perspective synthesizes ideas from the theory of the state in political sociology (Alford & Friedland, 1975; Block, 1987; Skocpol, 1976) and resource dependence theory in organizational sociology (Aldrich & Pfeffer, 1976).

[20] These figures are for degree-credit enrollments only. There are no national figures on noncredit enrollments, though some state-collected figures are available. However, we estimate that noncredit enrollments are about half as large as credit enrollments at community colleges. For more on this, see endnote 2.

[21] We should note that there is evidence that employer-provided or -financed training also appears to be more common in firms that offer extensive employee benefits, are committed to innovative workplace practices, and have below average employee turnover. Interestingly, unionization is only weakly related to firm demand for formal employee training. If there is any relationship, it is that unionized firms demand less formal employee training, seemingly because their workers are more experienced and require less training (Frazis et al., 1997, 1998). Unfortunately, these studies do not show to what extent these same factors explain the association between firm size and industry on the one hand and demand for formal training on the other.

[22] Unfortunately, the 1995 Survey of Employer Provided Training was not designed to separate financial flows between firms and community colleges taking the form of contract training versus just tuition reimbursement for taking of regular college courses (Horrigan, 1999).

[23] The response rate in this survey was 53 percent. The community colleges themselves decided to which firms to send the surveys. The average number of firms responding per community college was 24, with a range between 3 and 145 (Zeiss & Associates, 1997).

[24] As examples of formal training, the survey listed "attending a class conducted by an employee of your company, attending a seminar given by a professional trainer, or watching a planned audio-visual presentation." Informal training, meanwhile, was defined as "unstructured, unplanned, and easily adapted to situations and individuals" (Frazis et al., 1998; U.S. Bureau of Labor Statistics, 1996).

[25] The impact of establishment size may well be larger than this. The smallest size category in the 1995 BLS survey was 50 to 99 employees. However, smaller establishments are much less likely to provide formal training than are larger ones. A 1993 BLS survey of employers found that, whereas 98 percent of establishments with more than 50 employees provided formal job training, only 69 percent of establishments with 49 or less employees did so as well (Frazis et al., 1995). Unfortunately, the 1993 survey did not collect information on intensity (hours) as versus incidence of formal training.

[26] For descriptions of specific state programs that take firm size into account—explicitly or implicitly—in awarding funds, see the state case studies in Regional Technology Strategies (1999).

[27] For descriptions of individual state programs that target particular industries, see the individual case studies in Regional Technology Strategies (1999).

[28] Interestingly, union/management joint apprenticeship programs in other industries are less likely to run their own training facilities and instead rely more often on outside training providers such as community colleges. For example, at the Ford Motor Company, out of 51 providers of related classroom training for its apprenticeship programs for the unionized skilled crafts, 17 are community colleges and none is a union/management facility (Ford Motor Company, 1998).

[29] Some joint apprenticeship training committees (JATC's) in construction do contract with community colleges to provide the classroom training component for apprenticeship programs (Light, 1998; Tesinsky, 1997). But much more commonly, JATC's ask community colleges to do no more than simply grant college credit for JATC-provided training (Armstrong, 1997, 1998; Benson, 1998; Israel, 1998).

[30] The banking industry may be an even heavier user of professional associations for training than is the case with the rest of the FIRE sector. In our analysis of the AACC/NETWORK National Community College Workforce Development Database in December 1998, we found, for the banking industry, only six programs at community colleges that definitely involved contract training.

[31] In fact, there is evidence that active involvement in contract training may sap the energy and attention of community college administrators needed to keep programs for baccalaureate preparation and remedial education in good repair.

[32] In a 1995 survey of 56 directors of workforce development at community colleges in 27 states, 49 percent mentioned that quality of the instructional staff was a major factor in the success of a program (Zeiss & Associates, 1997). Similarly, among the 277 respondents to Deegan and Drisko's 1983 survey of community colleges regarding contract training, 35 percent said that lack of qualified instructors was a major sources of problems in providing contract training (Deegan & Drisko, 1985).

[33] In Deegan and Drisko's 1983 national survey, 13 percent of the responding community colleges described difficulties in working with faculty schedules (Deegan & Drisko, 1985).

[34] On-the-job training while at a previous employer had no significant effect on wages at the current employer (Lynch, 1992). Lynch takes this to mean that on-the-job training is more firm-specific than general. Our own research indicates, however, that a lot of on the job training is not firm specific. Perhaps, however, it is not being rewarded by a subsequent employer because it is not certified in a way that the next employer can recognize or trust.

[35] See endnote 2 above for how this estimate was derived.

[36] However, we should note that a number of our interviewees specifically responded that they could not recall any instances of corporations—with whom they had contract training ties—lobbying the state or federal governments on behalf of the community college (Saganski, 1997; Vandermark, 1997; Yancey, 1998).

[37] In auto manufacturing, unions—especially the United Auto Workers—play a key role because they have equal membership on the national and local joint apprenticeship committees controlling apprenticeship training (Blum, 1998; McDougal, 1998; Pope, 1998). Moreover, union members play a key role on committees designing retraining plans for plants that will be undergoing substantial technological change (Harrison, 1997; Parkhill, 1998).

[38] This is corroborated by the fact that interviews we had with liberal arts chairs and deans turned up little evidence of tension with the contract training programs (Beale, 1998; Tortorici, 1998).

[39] We should hasten to add that these particular curricular changes did not come at the request of firms but were initiated by the director of the auto repair program. However, his commitment to the concept of contract training played a key role in motivating him to make these suggestions.

[40] Of the remaining two-year colleges, 55 percent lodged contract training in their continuing education departments, 6 percent in an academic department, and 8 percent in some other location.

[41] This statistical association does not necessarily mean that where a program is quartered determines how active it will be. In fact, the reverse can be true as well: level of activity determines organizational location.

[42] This estimate may be high. Another study puts the figure closer to 15 percent (Carmichael, 1991).

[43] ATC's often also provide small firms with contract training to retrain the workers who will operate the new technologies. And some even get into providing small business incubation (Hinckley, 1997; Harrison, 1997; Williams, 1997).

[44] In spring 1995, 497 incubators were listed in the database of the National Business Incubation Association (Adkins, 1996). However, there is good reason to believe that many incubators do not come to the NBIA's attention.

[45] According to a 1991 survey by the National Business Incubation Association, two-year colleges are the major sponsors of only 6 percent of all business incubators. The other major sponsors are four-year colleges and universities (10 percent), non-educational public agencies (51 percent), for-profit organizations (8 percent), and hybrids (25 percent) (National Business Incubation Association, 1992).

[46] The president of the ASA is one of 10 members of AMI's board and AMI is located at the ASA headquarters. Also ASA donated $212,000 in 1995 and $176,000 in 1996 to help get AMI off the ground (Automotive Management Institute, 1996).

[47] A 1995 study of the Michigan members of the National Business Incubation Association—none of which are housed at community colleges—found that both graduates and current tenants of the incubators rated the office space and services higher than the business skills

training. The study also found that the main reasons both graduates and tenants said they entered the incubators was for low rent and shared services; only 8.6 percent of the current tenants said management assistance (Molnar, DePietro, & Gillette, 1996). The Michigan incubators are largely run by local economic development agencies (Saganski, 1997; Vandermark, 1997).

[48] The response rate was 37 percent of the 497 business incubators in the NBIA's database in spring 1995 (Adkins, 1996).

[49] These 481 graduates were drawn from 69 incubators and represented an estimated 44 percent of the graduates of the 150 incubators that responded to the 1991 NBIA survey. The 150 incubators represented one-third of the 425 incubators known and contacted by the NBIA in spring 1991 (National Business Incubation Association, 1992). It should be kept in mind that the vast majority of these incubators were not housed at community colleges.

[50] These national figures are reinforced by a 1995 study of graduates of incubators in Michigan. It found that, among 38 firms that had graduated from the incubators between 1990 and 1994, 87 percent were still under original management in 1995, 5 percent had been purchased by another business, and 5 percent were out of business. These 38 firms represented 9 percent of the 423 firms graduating in 1990-95 that were identified by incubator managers (Molnar et al., 1996).

[51] These figures are largely echoed in the Molnar et al. (1996) study of Michigan incubators. Among 38 firms that had graduated from the incubators between 1990 and 1995, 83 percent had become profitable, their average total revenues in 1994 were $1.5 million (the median was $895,000), and they employed on average 10 full-time employees and 3 part-time employees (the medians were 5 and 1) (Molnar et al., 1996).

[52] See, for example, the market assessment by Eastern Iowa Community College District (1992).

[53] However, only 10 percent of the community colleges responded that an employee served on the state Private Industry Council. These figures have to be taken with some caution since the response rate for this survey was only 24 percent (Katsinas et al., 1995).

[54] This topic is being examined by a research project headed by Thomas Bailey at the Community College Research Center that is examining the degree of compatibility between the multiple missions of the community college.