APPENDIX A

Grantee Profiles of Sites Visited

Eastern Missouri Pathways to Careers in Advanced Manufacturing Construction and Technology

Grantee:	Carpenters Joint Training Fund (Carpenters Joint Apprentice Program)
Location of Grant Activities:	Southeastern Missouri, including St. Louis metropolitan area (St. Louis County and City, St. Charles County, and Jefferson-Franklin County) and the three county area surrounding and including Cape Girardeau (Perry County, Cape Girardeau County, and Scott County)
Sector Targeted:	Advanced Manufacturing and Construction
Type of Grant:	Training and Capacity Building
Grant Amount:	$2,187,107
Match/Leveraged Amount:	$685,532
Grant Period:	12/01/04 – 11/30/07 (Extended to 12/27/08)

Workforce Context: The area served, which includes urban, suburban, and rural areas, has seen much change and economic development in recent years, especially in the advanced manufacturing and construction sectors. Although a significant number of large manufacturing firms in the St. Louis metropolitan region have closed or moved to other areas, a core of small and mid-sized manufacturing employers have remained. However, positions with these manufacturers often require a higher skill level than was the case in the past. As the workers within the manufacturing sector have aged and their skill levels have become obsolete, there has been a growing demand for skilled manufacturing and construction workers. The area has also experienced growth in non-unionized employment (including need for new workers at Proctor and Gamble, Toyota, and Little Tykes). Although residential and commercial construction (a focus of the training provided under this grant) had boomed over the last decade, growth in residential construction industry has recently cooled significantly and there is concern that the commercial construction market may also experience a slowdown in the coming year. While the area has experienced growth in non-unionized employment, the construction sector in and around St. Louis is still heavily unionized – estimated at 85 percent in the residential construction sector and 90 percent in the commercial/industrial construction sector. Because of the high degree of unionization of this sector, the apprenticeship program – operated by the Carpenters' District Council – is a very important source of workers.

Project Goals: The grant is aimed at preparing young adults, dislocated workers, underemployed, and incumbent workers for well-paying jobs in the advanced manufacturing and construction sectors. The various training components are also aimed at providing skilled workers that meet the staffing needs of area employers, in particular to help retain high-tech manufacturing, engineering, and construction businesses and to support expansion and new business development in these sectors. An underlying objective of this effort is to provide participants with portable credentials and to link training efforts to community colleges so that individuals receiving training also receive some academic credit towards achieving an Associate's degree. Specific outcome goals include:

a. Train and license high school instructors in skill standard certifications so that they can teach and certify students in advanced manufacturing and construction skills; and

b. Create an eight-week maintenance technician training program that is accessible for dislocated workers.

Major Project Components:

- *Youth Training Initiatives*

  a. *Bayless High School Pre-Apprenticeship Program.* This program, which targets high school juniors and senior high school students, took advantage of an unused shop room in Bayless High School located in the St. Louis metropolitan area. During this two-year program, participants received 3 hours per day of floor laying instruction, which fulfilled the classroom instruction component of the floor laying apprenticeship program at the Carpenters' District Council of Greater Saint Louis and Vicinity. After completing two years of coursework, the graduating senior is on a track to become a journeyman. Twenty-two youths have been enrolled in the training since its inception.

  b. *"Project Lead the Way."* In this capacity-building "train-the-trainer" initiative 20 high school teachers from eight school districts in the St. Louis metro area received classroom training to improve their teaching skills. In addition to instruction on strategies to more effectively teach high school science, math, and engineering, the teachers also obtained certification to provide OSHA safety training and certification to high school students. On completion of the training, teachers were qualified to teach five courses that prepared high school students for entry into Associate's degree programs at community colleges. Students taught by these certified teachers received 12 credit hours (and advanced standing) should they decide to attend an associate degree program at the local community college following high school graduation.

  c. *Operation Excel Pre-Apprenticeship Training Program.* Operation Excel-Youth Build is under contract with the Carpenters District Council to provide a nine-week, eight hours per day pre-apprenticeship training program that targets disadvantaged youth (ages 18 to 24). Nearly all of the funding for this initiative comes through a grant from the Missouri Department of Transportation; the HGJTI grant pays for an instructor at a local community college to provide 32 hours of welding instruction. This program prepares disadvantaged youth for highway construction jobs, entry-level construction jobs, and entry into apprenticeship programs and results in a certificate of completion, as well as certification in a variety of competencies – cardiac pulmonary resuscitation/first aid, 10-hour OSHA compliance. A total of about 500 applied for the program and 400 enrolled. The typical class size is 35 to 40 individuals.

- *Adult and Dislocated Worker Training.* The Pathways program is designed to equip graduates with skills they need to obtain and retain employment in the advanced manufacturing and construction industry sectors. In addition, this initiative verifies the competencies of participants to potential employers with a series of nationally-recognized certifications. The programs operate out of Carpenters' District Council facilities in St. Louis and Cape Girardeau and are designed to serve recent high school graduates, entry-level workers, and recently unemployed adults. The program is organized into two interrelated components: a basic skills/core curriculum (based on Work Keys) and an advanced curriculum designed to meet entry-level competencies as defined by local industries and manufacturers. The basic skills component includes workforce readiness, reading comprehension, computer and Internet skills, and industrial math. The advanced curriculum component includes basic mechanical knowledge, precision management, mechanical blueprints, mechanical components, industrial safety, forklift operator training, and basic welding.

- *Incumbent worker training:* HGJTI funding has been used to cover half of the cost of upgrading skills of incumbent workers. A wide variety of training has been provided, including: Occupational Safety and Health Administration (OSHA) courses (OSHA-10, OSHA-30); Mine Safety and Health Administration and forklift safety certifications; supervisory, welding, computer, industry electric and shear and brake trainings; and programmable logic controls and electronic and mechanical maintenance.

Key Implementation Lessons:

- *Development of portable and recognizable credentials is crucial.* The grantee placed a significant emphasis on "articulation" of training programs with community colleges such that training provided was recognized and accepted by community colleges and that training participants received academic credit toward an Associate's degree. In addition, the grantee emphasized portability of credentials so that the training would be recognized and rewarded if workers applied for positions with employers in other locations.

- *Utilize assessment credentials that will demonstrate skills to employers.* The grantee administered Work Keys assessments to training participants as a way to demonstrate to employers that participants completing training under the initiative would bring a specified level of basic skills to the job. Program administrators noted that employers were recognizing and using Work Keys as a tool for assessing basic skills of new and incumbent workers.

- *It is important to solicit employer input on content of training.* Program administrators emphasized the importance of gaining employer input on types of training to provide and determining specific content of curriculum. The Regional Industrial Training Groups (RITG) formed in two locations were viewed as essential for providing input into training initiatives created (particularly for the incumbent worker training component). In addition, employers found participating in such groups helpful in learning about training available within a locality and recruitment of skilled workers.

- *Educational partners were reluctant to be held accountable for placement and retention outcomes.* Partnering educational institutions, which were contracted to provide training to HGJTI-funded participants, thought it was their responsibility to provide instruction and resisted being held accountable for job placement or retention outcomes.

Key Partnering Agencies: In addition to Bayless High School, which sponsored the pre-apprenticeship floor laying program, other partners included employers who are members of the RITGs in Cape Girardeau and St. Louis. Various community colleges and technical schools, such as Mineral Area College and Southwestern Illinois College, provided facilities and instruction, in particular for incumbent workers. Although it was anticipated that five area WIBs would be actively involved in recruitment efforts for this initiative, the expected participation did not materialize. This was a key challenge and forced the Carpenters Union to take responsibility for both recruitment and training of program participants.

Post-Grantee Status (as of March 2008): The grant period for this initiative was extended to December 2008. It is anticipated that some of the training and other grant activities will continue after the grant period ends with funding from a $5 million WIRED grant that covers much of the same area served under the HGJTI grant.

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Women in Skilled Trades

Grantee: Chicago Women in Trades (CWIT)

Location of Grant Activities: 11-county area in and surrounding the Chicago metropolitan area (Cook, DuPage, Will, McHenry, Grundy, Livingston, Kankakee, DeKalb, Kendall, Lake, and Kane counties)

Sector Targeted: Construction

Type of Grant: Training and Capacity Building

Grant Amount: $2,092,343

Match/Leveraged Amount: $1,172,398

Grant Period: 10/04–06/07 (extended to 06/08)

Workforce Context: When the HGJTI project began, forecasts projected strong and sustained growth in the office and residential housing market in the Chicago metropolitan area. Before grant receipt, job growth projections coupled with anticipated retirements of existing workers translated into estimates for 5,400 new construction jobs annually. However, the industry has historically experienced difficulty recruiting workers from nontraditional labor pools, such as women. In fact, women represent less than 3 percent of all skilled construction trades workers throughout the country. This grant focused on increasing female awareness of preparation for and participation in a variety of skilled construction trades.

Project Goals: The project includes four goals:

a. Create an articulated, systemic approach to maintain a pipeline and support system for female applicants to the construction industry that operates in a timely and targeted way to meet industry needs and addresses barriers that impede female applicant's success.
b. Expand the pipeline of qualified applicants for skilled trade apprenticeships through a systemic outreach campaign to underrepresented female populations.
c. Support the connection of, preparation for, and successful entrance and retention of female candidates in the construction industry.
d. Enhance the ability of the workforce investment system and community colleges to promote the construction industry to female clients and students and support their preparation to be competitive candidates.

Major Project Components:

- *Recruitment.* The original goal for outreach and recruitment efforts was to increase awareness of job opportunities in the construction trades for 9,200 women, primarily through their attendance at orientations and career fairs. (This goal was revised downward to 7,000.) Through August 2007, CWIT had conducted outreach to 6,702 individuals. Outreach and recruitment efforts include development and distribution of pamphlets and flyers, public service announcements (PSAs) on the radio, newspaper advertisements, and job fairs.

- *Intake and Assessment.* The project specifies four eligibility criteria for participation: (a) women; (b) possess a valid driver's license; (c) 18 years old or older; and (d) legal authorization to work in the United States. A three-step assessment process that screens eligible participants includes (a) a 1½ hour aptitude test to measure basic math and reading skills; (b) a physical agility test that includes jumping jacks, sit-ups and tests of ability to lift and carry heavy weights; and (c) a 30-minute "discussion of interest" in-person interview led by a CWIT staff member and a representative of the industry (e.g., an employer or union representative.)

- *Training and Curriculum Development.* The key training component for this program is the Technical Opportunities Program (TOP), a pre-apprenticeship training session, designed to prepare participants and make them competitive for apprenticeship exams and interviews. The 12-week training program includes 170 hours of training (14 hours a week, with training provided two evenings a week and on Saturday). CWIT developed curriculum based on the skills and exam requirements for entry into apprenticeship programs. The curriculum includes four major areas of training: (1) math; (2) job readiness; (3) hands-on experience in various construction trades, generally hosted by industry partners; and (4) physical conditioning. Instructors developed and refined a modular curriculum called "In for a Change: A Curriculum Guide for Pre-Apprenticeship Training" that provides lesson plans and hands-on exercises.

  While CWIT had revised its enrollment goal to 450, the organization was able to enroll 593 trainees and had 382 complete the training by October 2009. TOP had aimed to place 300 trainees in apprenticeship programs or gain employment directly in the construction industry. As of October 2009, 253 TOP completers have entered apprenticeship programs. Additional completers have entered work in the construction industry in other capacities, often as laborers. The project has exceeded the $13 an hour goal for average wage at placement as trainees are earning an average of $17.62 an hour.

- *Case Management and Job Development Services.* Case managers monitor training participants' progress throughout the TOP program. The case manager helps identify needed support services and ensure that completers successfully apply to apprenticeship programs. A job developer also meets with students to make sure they are aware of the various apprenticeship opportunities. The job developer also teaches the job readiness TOP classes, monitors when new apprenticeship programs begin, and troubleshoots issues around retention for TOP participants once they enroll in apprenticeship programs.

Key Implementation Lessons:

- *Programs must be prepared to adjust to changing job growth projections over the course of a multiyear project.* The pace of construction industry hiring slowed down during the first two years of the grant. As a result, the number of available openings in construction trades' apprenticeship programs declined over time. CWIT was forced to revise its enrollment goals downward and extended the contract (through a no-cost extension) by one year.

- *To be successful, training programs must engage in communications efforts to challenge and overcome stereotypes about women in nontraditional jobs such as construction.* During recruitment and apprenticeship application, CWIT and trainees had to overcome much skepticism and stereotypes concerning women entering and being successful in construction, especially as CWIT expanded its grant activities more counties in the Chicago region. CWIT devoted time and resources to an extensive public relations campaign to raise awareness about the potential for encouraging women to enter the construction industry.

- *Engaging the full cooperation of and integration with all partners in the workforce investment system in a large service area can prove challenging.* Although some of the WIBs and One-Stop Career Centers were enthusiastic and willing partners, many were reluctant to participate because of fears and concerns associated with the nontraditional nature of women in the construction trades. In addition, construction trades were not among those sectors identified by the state as "critical skills shortage" areas, so WIBs were more focused on other industries. In addition, TOP training is not aligned with college credits or accreditation and community colleges, which typically focus on credit-based programs, and often must overcome bureaucratic barriers to provide the type of noncredit instruction associated with this program.

Key Partnering Agencies: Four community colleges (Joliet, DuPage, Elgin, and McHenry) have played active roles as recruiters and service providers under the initiative. These colleges have assisted with recruitment in suburban areas, and then offered TOP classes. CWIT has engaged WIBs and One-Stop Career Centers in Cook, DuPage, and McHenry counties in outreach and recruitment efforts. Unions sponsor hands-on instruction, usually at a trade union training facility. CWIT maintains close contact with unions to identify when new apprenticeship classes begin. State agencies have provided some match, and the Apprenticeship Information Centers have disseminated information about apprenticeship programs.

Post-Grantee Status (as of October 2009): As the grant was ending, CWIT secured future sources of funding and continues to solicit additional sources. With encouragement from CWIT and other partners, the state legislature approved a $6.2 million program (Employment Opportunity Grant Program) that provided funding to support pre-apprenticeship and other training initiatives. Under the initiative, CWIT was to receive $650,000 over an 18-month period to continue its TOP program, with a focus on providing training for women in Cook County. The funding for this program was subsequently reduced due to the state budget crisis. CWIT also submitted a grant proposal to the Aspen Institute for funding for a three-year "bridge program" that would help low-income individuals lacking basic skills to make the transition to education and training at community colleges and a career.

CWIT also continued its communications efforts to bring more women into the construction trades. It completed a career education video for marketing the TOP program and built a how-to manual Web site with the career education booklet and video (www.chicagowomenintrades.org/top/top_home.html). CWIT is currently following up with partners and other institutions to share the curriculum it developed as well as the Web site to support new attempts at replication but these efforts have been stalled by the state budget crisis.

The industry has been hard hit by the recession and there are currently very few apprenticeship programs taking new applicants. Government investment in infrastructure and green jobs may change this situation and CWIT is involved with industry, community colleges, and government partners to prepare and connect women to welding and green jobs. CWIT has responded to the recession and attendant retention issues by acquiring a 12,000 sq. ft. workshop space to expand hands-on training in TOP, offer skill building classes, and facilitate practice, mentorship, and community building. In addition, CWIT partner and education provider, Joliet Junior College, was able to obtain accreditation for the TOP program from the Illinois Community College Board and received a grant from the Illinois Department of Commerce and Economic Opportunity to operate classes as an accredited certificate program.

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Rural Healthcare High Growth Job Training and Economic Recovery Initiative

Grantee:	Columbia Gorge Community College (CGCC)
Location of Grant Activities:	Mid-Columbia Region (North Central Oregon and South Central Washington)
Sector Targeted:	Health Care
Type of Grant:	Training and Capacity Building
Grant Amount:	$1,250,000
Match/Leveraged Amount:	$1,367,000
Grant Period:	04/04–09/06 (extended to 08/07)

Workforce Context: The training programs developed focused on the health care skill needs of the local hospitals and long-term care facilities in the region as well as the need for good jobs for local residents. These hospitals and facilities, according to a survey conducted by CGCC, were experiencing a shortage of health care workers and would continue to in the future. No regional health occupations program existed to train residents locally, so CGCC decided to create a career ladder program to train certified nursing assistants, licensed practical nurses, and registered nurses to meet the need. CGCC also recognized a local shortage in first responders and emergency medical technicians, who are mainly volunteers, and added a program to train them. Those who completed the nursing career ladder and became licensed as a registered nurse could earn upwards of $70,000 a year.

Project Goals: In order to support the overarching goal of creating a pipeline of 200 new health care workers for the Mid-Columbia Region, the program aimed to:

a. create a health occupations career ladder;
b. install a simulation laboratory to become a regional training center for health occupations;
c. increase effectiveness of worksite training with a preceptorship training program;
d. create recruitment and training advancement through partnerships; and
e. expand job placement opportunities with health care business partners.

Major Project Components: The project consisted of the following training and capacity-building components:

- *Recruitment.* The program aimed to recruit minorities, youth, and dislocated workers for health care training. The program did not initially meet anticipated enrollment and recruitment targets, but partners continued to reach out to eligible individuals. All student trainees must pass reading and math assessments and a background check. In addition, nursing students must complete a placement exam and are subject to an admissions interview.

- *Health Care Training.* CGCC developed and supported a career ladder that includes five health care training programs. First, the certified nursing assistant (CNA) program served the largest number of trainees, approximately 200. The CNA program includes 160 hours of training with 80 hours in class and 80 hours in a clinical setting. A full-time instructor delivers classroom training, and an adjunct instructor provides clinical training. Second, the certified medical

assistant (CMA) program provides practicing CNAs an additional 80 hours of training, with 48 hours in class and 32 hours in a clinical setting. CMAs use a simulation lab for training. A part-time instructor delivers classroom training, and a preceptor (mentor/clinical instructor) oversees aspects of the clinical experience. The Associate's Degree in Nursing (ADN) is a two-year associate degree program (90 credit hours), and graduates take a licensed registered nurses (RN) test. Nursing students can become licensed practical nurses (LPNs) after completing one year and earning 46 credits. To complete the two-year program, students must complete 12 days of preceptorship, including two days in the simulation lab and 10 days at area hospitals. Academic prerequisites include biology, chemistry, and math and reading proficiency. These three programs make up the career ladder for nurses.

CGCC also developed training for first responders and emergency medical technicians. The emergency medical technician (EMT) program trains volunteer firefighters in the region. Trainees receive 160 hours of training, including eight hours in an emergency room setting. The first responder program provides 44 hours of training in CPR and emergency response.

The project has enrolled 668 trainees and 625 completed training as of July 2007.

- *Simulation Laboratory*. The development of the simulation laboratory ("sim center") was a major project component. The lab simulates clinical settings of which there are limited slots for students and opportunities for different medical situations that more urban health facilities would have. CGCC constructed the simulation lab to look like a hospital room with equipment and medical instruments to be used on "sim" people, or dummies that can mimic breathing, heartbeats and pulses, and more. The "sim" people are also connected to a computer and microphone where instructors control the vital signs of the dummy and are the voice of the patient during clinical scenarios.

- *Curriculum Development.* Each training program required curriculum development, but the development of the CNA, CMA, and ADN curricula was a very involved process to ensure that the curricula met state standards. In addition, curriculum was developed for the scenarios used in the sim lab to ensure that the nursing students received as "true to life" clinical experience as possible. With these new curricula, CGCC is seeking state accreditation for its health occupations programs by 2009.

Key Implementation Lessons:

- *Having experienced staff in federal grant management and procurement is important.* CGCC did not have the infrastructure in place to manage a large grant and the accompanying federal requirements. In addition, the procurement process for the construction and installation of the sim lab was labor intensive and required some knowledge of the college's financial system and procedures. Thus, CGCC hired someone to administer the procurement process to secure the necessary equipment for the simulation lab.

- *Training programs must find and retain knowledgeable instructors.* Qualified instructors (usually BSN/RNs) can earn more practicing as nurses than as instructors, and many potential instructors cannot afford to accept lower earnings to teach new students. CGCC continued to seek new instructors for classroom and on-the-job training.

- *It is important to realize that financial commitments of employers and other partners may be affected by changing economic conditions.* CGCC experienced some initial difficulty collecting

the promised financial support from employer partners but worked with the employers to help them realize the return on investment that they would see from this support.

Key Partnering Agencies: The Mid-Columbia Medical Center, Providence Hood River Memorial Hospital, and Oregon Veterans Home played active role in planning, development, and implementation of the project, including funding, on-site training, curriculum review, recruitment, and hiring. Other area hospitals participated and provided financial support, recruitment, and hiring. The long-term care facilities in the area also provide support, especially for the CNA program. The Mid-Columbia Council of Government (MCCOG), the local WIB/One-Stop Career Center operator in the region, played a limited role but helped by referring dislocated workers and other job seekers to the college. La Clinica, a community-based organization in Hood River, helped develop outreach materials in English and Spanish and provided clinical setting opportunities. Oregon Health Sciences University offered to share experiences and modules from its own simulation lab.

Post-Grantee Status (as of June 2007): The health occupations project secured funding through program year 2008, using a mix of employer financial support, state grants, federal grants, and general funds. The project will likely continue after 2009 if the training programs achieve accreditation and if trainee recruitment matures. In addition, outside nursing programs have begun traveling to CGCC to learn about the sim lab and how to replicate it.

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Aerospace Industry Training Partnership – Technically Advanced Proficiency Program (AITP-TAPP)

Grantee:	Community Learning Center, Inc. (CLC)
Location of Grant Activities:	Dallas–Fort Worth metropolitan area/Tarrant County (North Central Texas)
Sector Targeted:	Aerospace
Type of Grant:	Training and Capacity Building
Grant Amount (Grant 1):	$2,860,000
Grant Amount (Grant 2):	$1,168,400
Match/Leveraged Amount (Grant 1):	$2,289,186
Match/Leveraged Amount (Grant 2):	$1,168,080
Grant Period (Grant 1):	6/01–6/03 (extended to 12/03)
Grant Period (Grant 2):	9/03–9/05 (extended to 5/06)

Workforce Context: With over 30,000 aerospace products and parts manufacturing jobs, the aerospace and aviation industry is the largest industry in the Dallas-Fort Worth area. Because of the cyclical nature of this industry, there is often a gap between available entry-level aerospace positions and the skill sets of both dislocated and incumbent workers available to fill these jobs. Key employers may experience a workforce downturn when production slows or ceases and significant layoffs may occur. When production resumes, employers struggle to identify and recruit qualified workers to replace the laid-off employees who may have moved on to other positions. The Aerospace Industry Training Partnership (AITP) project was created to address the current and projected shortage of qualified airframe workers within the aerospace industry through the development of an industry-led workforce development consortium. This AITP consortium, a broad-based partnership of representatives from the aerospace industry, organized labor, higher education, the public workforce development system, and local private, non-profit training and employment agencies, "supports the dynamic growth of aerospace and related industries by ensuring quality workforce development activities based on their labor needs and industry performance standards." The Community Learning Center, Inc. (CLC), a founding member of the AITP consortium and grantee for this project, is a non-profit community-based organization established by the Tarrant County Central Labor Council as a workforce development and job placement organization to assist area workers with education, training, and employment services that lead to "career-progressive jobs."

Project Goals: The overall goal for both AITP grants was to develop and test the effectiveness of an industry-led workforce development partnership approach to creating a model employment and training program to address the shortage of qualified workers in the aerospace and related industries. Specific goals under the first grant were:

a. Provide 1,250 dislocated workers with pre-technical and technical training that would prepare them for and result in employment as aircraft assemblers with Lockheed Martin Aeronautics Company-Fort Worth (LM Aero) or in similar positions with other employers; and

b. Provide 250 incumbent workers at risk of being laid off from low-demand positions at Bell Helicopter Textron, Inc. (BHTI) with advanced composites fabrication (ACF) training that would lead to advancement in high-demand skills material bonding positions at BHTI.

Because the need for ACF training for incumbent workers did not materialize due to a reduction in workforce at BHTI, the incumbent worker training component was eliminated and the goals of the first grant were modified to focus only on the development and implementation of the program for dislocated workers.

Under the second grant, the project was enhanced and re-named Aerospace Industry Training Partnership Technically Advanced Proficiency Program (AITP-TAPP) and the incumbent worker training was reinstated as a goal. Specific goals under the second grant were:

a. Provide at least 320 dislocated workers with technical training and related supports and subsequent employment in aircraft assembler, material bonding and other entry-level positions at LM Aero, BHTI, and other companies in aerospace and related industries; and

b. Provide at least 320 incumbent workers of BHTI who are at risk of being laid off from low-demand skills positions with ACF training and subsequent advancement into high-demand skills material bonding positions at BHTI. This goal was later expanded to include incumbent workers with other industry employers as well as training and/or certifications in other high-demand skills to prevent loss of jobs due to changes in technology or customer demands.

Major Project Components:

- *Curriculum Development*. Tarrant County College (TCC), an original member of the AITP consortium, was awarded a contract to develop and implement a curriculum for a structural aircraft assembly training program, with guidance from representatives of other consortium partners and research conducted by TCC staff with LM Aero aircraft assemblers. Although this curriculum was used for the training conducted during the first year of program operation, concerns about skills assessments led LM Aero to assign one of its training consultants to review and revise the curriculum, again with input from other partners. A new curriculum, which emphasized more formal assessment methods and a final skills practical exam, was adapted from LM Aero's in-house aerospace technology training curriculum. This training consultant also provided training and guidance on the use of the new curriculum and assessment to the AITP instructional team. When hiring needs shifted and a new employer emerged as the primary employer of program participants, the curriculum was modified to focus on its production methods.

- *Dislocated Worker Training.* Aircraft assembler training was provided to dislocated workers by a team of CLC and TCC instructors, which included retired union mentors, who provided classroom instruction and hands-on practical training in a "virtual factory" training facility at the Fort Worth Opportunity Center (FWOC). This training facility, designed to mirror the real-world factory work environment, was equipped with tools, supplies, materials, and factory equipment contributed by industry employers. Participants who completed the 5-week, 200-hour training program and successfully received a "certificate of achievement" qualified for a preferential interview with LM Aero or, after LM Aero went into a hiring slowdown, with Vought Aircraft

Industries. Under the two grants, 1,098 individuals successfully completed the training and over half (55 percent) found employment in the first quarter after training.

- *Incumbent Worker Training.* Under the second grant, CLC worked closely with four employer partners (LM Aero, BHTI, EFW, and Aerospace Technologies) and organized labor to design and implement training programs to upgrade specific skills of incumbent workers. One of these programs, an electrical assembly training program for LM Aero, combined classroom training in three areas (wire termination, air sleeve soldering and wafer soldering) with an OJT component with industry mentors and resulted in 238 workers completing one or more components. Other trainings, which varied in duration, included wire stripping and crimping for BHTI workers (50 trainees), hand and machine soldering for EFW workers (40 trainees), and blueprint reading and layout for Aero Tech workers (5 trainees).

Key Implementation Lessons:

- *Unforeseen changes in workforce needs of employers can require flexibility and program modifications*. Under the first grant, CLC planned to provide incumbent worker training for a key employer partner but this need evaporated after the grant was awarded. The project focus was then shifted to providing structural aircraft assembly training for dislocated workers. Under the second grant, the employer (LM Aero) expected to hire most of the program's graduates experienced a workforce downturn but another major employer (Vought Aircraft Industries) stepped in to hire many of the newly trained workers.

- *An overwhelming response to the availability of training may require new strategies.* Program staff and staff from the partner helping with recruitment, Workforce Solutions of Tarrant County, were flooded with over 14,000 applications for 1,250 dislocated worker training slots after an announcement in the local press. Team members were forced to quickly develop efficient screening procedures and selection strategies for identifying appropriate referrals to the program.

- *Turf issues and lack of trust among partners must be addressed quickly.* As part of the development of this industry-driven consortium, employers, union leaders and other partners who had not previously collaborated were forced to work through trust issues and share training materials, curriculum, etc., in order to pursue common goals.

Key Partnering Agencies: The eight founding partners of the AITP consortium included two employers (LM Aero and BHTI); two labor unions (the International Association of Machinist & Aerospace Workers and the United Automotive, Aerospace, Agricultural Implement Workers of America); the Tarrant County AFL-CIO Central Labor Council; CLC, Inc.; Workforce Solutions for Tarrant County; Tarrant County College; and the FWOC (initially the operator of the virtual factory training facility.) Representatives from each organization served on the AITP Steering Committee, which provided oversight, monitoring, and guidance. Other key partners that joined the consortium and became consistent participants on the steering committee over the grant periods included employers Vought Aircraft Industries and EFW, and the Fort Worth Chamber of Commerce. While the continued involvement of all partners was viewed as critical to the success of the project, the participation and commitment of the aerospace employers and the unions was deemed particularly important.

Post-Grantee Status (as of October 2009): Since the end of the AITP-TAPP grant period (May 31, 2006), CLC, Inc., has continued to operate the structural aircraft assembly training program for workers from different backgrounds through a variety of funding sources, including a short-term contract with Workforce Solutions in 2006 and, most recently, through a grant project administered by DOL, which

began in March 2009. In addition, in 2006, CLC, Inc., was certified as a WIA eligible training provider by the Texas Workforce Commission (TWC), which has allowed and resulted in TWC Workforce (One-Stop) Center customers using their Individual Training Accounts (ITAs) enrolling in the training program in order to secure jobs in aerospace.

CLC, Inc., has also secured several sources of funding to apply the regional industry-led community consortium approach of the AITP-TAPP to the design and delivery of other regional sector-focused job training and placement programs targeting other occupations and workforce groups. These include:

- A three-year (2005-2008) North Central Texas Composite Bonding Training Program (CBTP), funded through a Wagner-Peyser (WP) 7(b) grant awarded by the Texas Office of the Governor and administered by TWC, which successfully trained 332 dislocated workers and effected 306 job placements, 265 of them into targeted occupations within aerospace and other advanced manufacturing firms; and

- A one-year (2008-2009) Workforce Solutions for Tarrant County contract project, which combined the curriculums from the structural aircraft assembly training program and CBTP into a single Aerospace Manufacturing Training Program (AMTP) and successfully trained 82 dislocated, unemployed, and underemployed workers and effected 45 placements, 35 of them into targeted occupations within the aerospace industry.

Further, since March 2009, CLC, Inc., has been operating two similarly designed projects, one funded by another WP 7(b) grant from the Texas Office of the Governor, which is training dislocated, unemployed, and underemployed workers for machinist, welding, and production jobs in manufacturing and construction, and, as noted above, one funded through an earmark grant that is providing for continued operation of the structural aircraft assembly training program, CBTP, and AMTP for dislocated, unemployed, and underemployed workers. Finally, CLC, Inc., has also been certified through the TWC WIA Certification System as a provider of the CBTP, AMTP, and Machinist and Welding Training Programs and is serving TWC Workforce Center customers with ITAs in these programs as well.

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Strengthening the Oil and Gas Industry

Grantee (Grant 1):	High Plains Technology Center (HPTC)
Grantee (Grant 2):	Oklahoma Department of Career and Technology Education (ODCTE)
Subgrantee (Grant 2):	High Plains Technology Center (HPTC)
Location of Grant Activities (Grant 1):	Oklahoma, Kansas, and Texas
Location of Grant Activities (Grant 2):	Oklahoma, Kansas, Texas, and Arkansas
Sector Targeted:	Energy
Type of Grant:	Training and Capacity Building
Grant Amount (Grant 1):	$1,546,463
Grant Amount (Grant 2):	$2,363,539
Match/Leveraged Amount: (Grant 1):	$528,683
Match/Leveraged Amount (Grant 2):	$855,568
Grant Period (Grant 1):	06/03–03/06
Grant Period (Grant 2):	12/05–11/07

Workforce Context: Despite low, and shrinking, total oil and gas employment, the energy industry experiences high worker turnover and retirement rates. Projections show an increase in demand for workers in Oklahoma's oil and gas extraction occupations, but simultaneously, heavy declines in the supply of skilled extraction workers. Although the industry pays high wages, this high-hazard sector requires specialized training not readily available in the targeted region. The oil and gas industry has faced shortages of skilled labor in recent years and offers high wages for its workers. Floor hands earn between $14 and $18 an hour and derrick hands start at about $26 an hour. High turnover plagues the oil and gas industry (five-six percent a month) because rigs continuously open up and close down. Workers unwilling to travel with their current rig to a faraway site lose their jobs. Although this initiative may not expand the pipeline into the energy industry, it aims to increase entry-level workers' skills set.

Project Goals: Both grants shared two main goals: (1) develop and provide training for new and incumbent workers in the oil and gas industry; and (2) better connect the industry with workforce development resources in northwest Oklahoma, southwest Kansas, the Texas Panhandle, and Arkansas. The second project built on the activities carried out under the first grant by adding the following specific goals:

a. build a satellite training center at another location in Oklahoma operated by HPTC staff (the Poteau site);
b. provide technical assistance to other education and training organizations across the country interested in establishing a similar program; and
c. establish an off-road truck driving training program component.

Major Project Components:

- *Training.* HPTC provides three types of training: (1) floor hand training for oil and gas drilling; (2) floor hand training for well servicing; and (3) derrick hand training for oil and gas drilling. Training integrated technical and soft skills with safety training. Forty hours of instruction are provided for each type of training over a five-day period, including three days of classroom instruction and two days of hands-on training. All workers must pass a drug test (urine screening) on the first day of the class. A recruitment and job placement specialist interacts with employers and the workforce investment system. HPTC will complete construction on its own off-road driving course and will soon introduce an off-road truck driving class. Trainees can attain specific industry certifications (e.g., forklift operations) where available in addition to certifications for completion of the training sessions. As of September 2005, the first grant trained 2,532 individuals (1,951 incumbent workers and 581 new workers). Over the first grant period, more than 3,500 received training. By the end of December 2006, the second grant trained 1,385 workers (983 incumbents and 402 potential new workers), exceeding its goal to train 1,303 workers (815 incumbent workers and 488 new workers). As many as 800 to 1,000 additional individuals could complete training before the grant ends on December 1, 2007. The project reports dropout rates below 1 percent.

- *Curriculum.* Several industry representatives from four industry associations assisted in developing the curriculum. The curriculum includes a manual for each of the three training courses, and the initiative translated one manual into Spanish so that trainees can attend instructional sessions in English and Spanish. HPTC hired bilingual instructors. Project staff also developed detailed instructor notes (which have been converted into PowerPoint presentations) and short DVD film segments that focus on safety, drilling techniques, and other aspects of the oil and gas industry. The curriculum, PowerPoint notes, and DVDs facilitate replication of the training program in other locales. Project staff provides technical assistance to educational institutions interested in oil and gas training.

- *Follow-Up Activities.* In 2005, the grantee surveyed over 45 companies to collect information on current job vacancies and future training needs. HPTC also conducted a follow-up survey of almost 100 incumbent employees who participated in the training, and found that over 70 percent of new entrant trainees obtained a job, and that pay increases averaged over $17,000 a year for incumbent workers who received promotions.

Key Implementation Lessons:

- *Difficulties recruiting and retaining qualified instructors present challenges.* The project experienced difficulty recruiting and retaining qualified instructors with hands-on experience in the oil and gas industry. Eligible instructors can usually secure highly competitive salaries (over $100,000 a year) with industry firms and may not be able to afford participating in training projects. During the course of the grant, several instructors left the training project after opting for jobs in the industry. Grantee staff attempted to lure qualified instructors to these jobs by highlighting the comparatively better working conditions enjoyed by instructors. They also recruited former workers in the oil and gas industry who had recently retired.

Key Partnering Agencies: Employers and industry associations play the most extensive roles in the initiative. Program staff estimated that 30 oil and gas companies (e.g., Unit Drilling, Key Energy Services, Devon Energy, BP, Pool Well Services, and others) have contributed cash or in-kind resources or support to the project as employer partners. Employers provide direct input on program design and curriculum that meets employer needs and reflect their production process. The following trade

associations have actively contributed to the initiative: Oklahoma Independent Petroleum Association, the Independent Drilling Contractors Association, the Association of Energy Service Contractors, the Marginal Well Commission, the Energy Training Council, and the Kansas Oil and Gas Association. These organizations provided input on training needs and curriculum as well as job needs and vacancies, and they have advertised the program to employers in the oil and gas industry. During the first grant project, the initiative benefited from partnerships with Workforce Oklahoma (the local WIA agency) and the WIB, which endorsed the project and referred trainees. The second grant project does not collaborate extensively with WIBs, although One-Stop Career Centers distribute brochures about the program and attempt to increase its visibility. Other peripheral partners that provide some outreach and recruitment support include the Bureau of Indian Affairs, Veteran Affairs, and the criminal justice system. The local chamber of commerce and economic development agencies provide opportunities to disseminate information about the project.

Post-Grantee Status (as of February 2007): The first grant ended in March 2006. Before its end, the initiative added training in additional occupational areas (e.g., off-road operations), and HPTC developed and implemented specialized industry-relevant training programs (e.g., blowout prevention) in response to input from employers. HPTC funded the latter through state funds and direct charges to employers. The program has not received any additional federal funds to continue the program after the second HGJTI grant ended in November 2007. The staff developed a $768,000 proposal to continue the program and has communicated with members of the state legislature about funding the request. In addition, the program requested $5 million for facility improvements at HPTC to accommodate the training program. HPTC may approach industry associations and employers to request funding. Trainers and other grantee staff would not likely remain on the project without funding.

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Arizona Biotechnology Career Ladder (ABCL)

Grantee: JobPath, Inc.

Location of Grant Activities: Pima County, Arizona (Tucson)

Sector Targeted: Biotechnology

Type of Grant: Training and Capacity Building

Grant Amount: $276,393

Match/Leveraged Amount: $185,710

Grant Period: 7/05–6/07 (extended to 12/07)

Workforce Context: Pima County aimed to position itself as a competitive area of growth in the biotechnology sector. A study conducted by Battelle projected over 27,000 new hires and a gap between the needs of employers and the number of skilled workers expected to enter the workforce over the next decade. Although relatively new and still small, biotechnology became an emerging industry and was regarded as having great potential for growth in the state and statewide efforts to promote Arizona as a magnet state for biotechnology were underway at the time. The Tucson area housed the BIO5 Institute at the University of Arizona, funded by the state as part of a statewide mandate to enhance biotechnology training. The Institute brought together researchers from agriculture, medicine, pharmacy, basic science, and engineering working with industry scientists and business professionals to focus on bioscience education and to find problem-based solutions using a cross-disciplinary approach.

Project Goals: The ABCL project aimed to develop, test, modify, and expand a career ladder to meet Arizona's biosciences workforce needs. The career ladder progressed through five stages: (a) introduction to biotechnology course through the Biotechnology Summer Institute/Pima Community College (PCC); (b) prerequisite courses for the PCC biotechnology certificate program; (c) PCC biotechnology certificate program; (d) employment in Biotechnology Industry; and (e) BS/MS/PhD coursework. Specific project goals included:

a. Build a pipeline of youth interested in pursuing careers in biotechnology through the development of an introduction to biotechnology course taught by PCC faculty to high school students in a Biotechnology Summer Institute. The outcome goal was the graduation of 50 high school students.
b. Deliver the introduction of biotechnology course to PCC students in fall 2006, who will then advance to prerequisites for other biotechnology courses. The outcome goal was 20 students from each class beginning in fall 2006.
c. Access new and/or untapped labor pools; transition workers from declining industries; build competency models, career ladders, and career lattices for new and incumbent workers; and develop incumbent workers by updating their skills. Recruit and support students enrolled in biotechnology courses and certificate programs at PCC. The outcome goal was to graduate 30 JobPath participants from the three core PCC biotechnology courses (Biotechnology I, II, and III) who would move on to employment or higher education. Provide financial support for other PCC students taking biotechnology courses or prerequisites.

d. Expand post-secondary training alternatives and engage small businesses by offering paid internships with bioscience employers for PCC students who have completed PCC biotechnology courses. The outcome goal was to graduate 30 participants from paid internships with employers.
e. Develop and sustain a career ladder for biotechnology in Pima County, which can be replicated statewide and nationally. The outcome goal was to disseminate course materials and information on this program model statewide and nationally to assist organizations to replicate and sustain the proposed project.

Major Project Components:

- *Biotechnology Summer Institute*. The Institute exposed high school students to opportunities in the biotechnology field through participation in a college-level introduction to biotechnology course taught at PCC. JobPath recruited participants from Tucson-area schools via various outreach methods, including in-person presentations, distribution of flyers, notices in school newsletters, and newspaper ads. JobPath received over 90 applications for the first session and accepted 25 (mostly junior and seniors). Incentives included an $800 stipend (not funded by the HGJTI grant) and four college credits upon successful completion of course. The Institute postponed the first session until summer 2006, and the no-cost extension allowed the grantee to offer the second session in summer 2007. Students attended class for four hours a day, five days a week. The course included hands-on lab experience, class lectures, guest lectures from employers, employer field trips, small group work experiences, and instruction in critical thinking skills. Ninety-six percent of students who enrolled in the summer 2006 session successfully completed the program. Since the Pima County Joint Technological Education District offered to cover the costs for one session, JobPath was able to offer two 25-student sessions during summer 2007.

- *Certificate in Biotechnology.* JobPath provided financial and other support to students enrolled in PCC classes leading to a certificate in biotechnology. The certificate, offered since 2004, complemented an Associate or Bachelor degree. Prerequisites included biology, chemistry, and math courses. Recruitment involved the distribution of flyers and outreach to churches, schools, and other organizations. The University of Arizona also referred students with Bachelor of Science degrees. Entry into the program did not depend on income level. JobPath covered tuition, fees, and books for participants. Participants also received in counseling and peer support sessions, were offered $20 gas cards, and had other support services available such as assistance with child care, housing, transportation, and utilities. The program offered hands-on lab experience, three core biotechnology courses (nine credits), and paid internships (320 hours, three credits) with biotechnology employers in industry or research. As of January 2007, 34 students enrolled in one of three JobPath programs: biotechnology (22), histology (seven), and medical laboratory technician (five). Seven withdrew, five completed, and the remaining 22 students continued participating. Twenty-seven participants received tuition, book, and exam assistance for an average amount of $465.11. Ninety-four percent of participants attended peer support meetings, and students attended an average of 9.7 meetings. JobPath's support of the students in the certificate in biotechnology program raised the visibility of the program.

- *Curriculum.* PCC faculty developed the introduction to biotechnology curriculum for the Summer Institute under the grant, and PCC planned to use the curriculum for an introductory course in biotechnology.

Key Implementation Lessons:

- *Unforeseen challenges may affect enrollment goals and expectations.* For a number of reasons, enrollment in the certificate in biotechnology program did not meet expectations. The college inadvertently omitted descriptions of the courses in one version of the course catalog and scheduled the courses during the day as opposed to evening hours when more students could attend. The project team then modified the scope of work to include support for JobPath students enrolled in separate histology and medical laboratory technician programs.

- *Changes in key personnel can have a negative impact on project progress and momentum.* The transfer of a key team member involved in the early development of the certificate in biotechnology program to another position at PCC resulted in the loss of some of the institutional knowledge as well as a delay in the forward momentum of the project.

- *Engaging the participation of employer partners can prove challenging.* JobPath experienced some difficulties establishing links with employers in their service area. Initially, project staff expected to receive cash for internship stipends and in-kind support from a key biotechnology employer. However, because that employer was located outside the Tucson area, students were unwilling or unable to travel to that location for internships, and that support did not materialize. In addition, many larger biotechnology companies were headquartered outside the Tucson area (closer to Phoenix), making establishment of links with these employers difficult. Although project staff indicated that more progress could be made in terms of developing these links, they were successful in identifying sufficient internship slots with a number of employers.

Key Partnering Agencies: JobPath benefited from close partnerships with several organizations on this initiative, most importantly PCC. Other key partners included the University of Arizona and its BIO5 Institute, which provided internships and in-kind resources. BIO5 faculty and researchers also participated as guest speakers, hosts for lab tours, and curricula reviewers. The Pima County WIB, which has a longstanding working relationship with JobPath, assisted with recruitment for this project. The Phoenix-based Flinn Foundation (which provides funding to Arizona nonprofit organizations for research projects) supported the Summer Institute's graduation ceremony, and a Flinn vice president chairs the project's advisory board.

Post-Grantee Status (as of October 2009): Project activities supported by the grant will likely continue after the grant period ends. In fact, the grant manager noted that this grant was "designed to be sustainable." JobPath planned to seek other funds, including additional federal funds, and are communicating with the State Workforce Commission to discuss securing financial support. Staff were also considering charging a fee for the Summer Institute in order to sustain the program.

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Louisiana High Growth Job Training Initiative

Grantee: Louisiana Department of Labor (LDOL)

Location of Grant Activities: State of Louisiana

Sectors Targeted: Health Care, Construction, Energy, and Hospitality

Type of Grant: Training and Capacity Building

Grant Amount: $3,000,000

Match/Leveraged Amount: None

Grant Period: 09/05–09/06

Workforce Context: In its rebuilding efforts for the state after Hurricanes Katrina and Rita, the Louisiana Department of Labor focused on a four-part approach for rebuilding: (1) businesses, (2) communities, (3) service delivery systems, and (4) the workforce. LDOL used HGJTI grant funding among others (National Emergency Grants and Base Realignment and Closure grants) to accomplish this overarching goal. The post-Katrina labor market demand increased compared with the pre-Katrina labor market, but some businesses experienced difficulties finding skilled workers, especially in the hospitality, construction and health care sectors. The lack of affordable housing also complicated employers' recruitment efforts. In addition, many who had worked in the area before Katrina had settled elsewhere and might not return. Thus, the mission to supply skilled workers to keep businesses open and operating was vital.

Project Goals: The project aimed to help prepare new, returning, and incumbent workers with skills for high-demand jobs needed in the new emerging economy and with transition support to reestablish their families. The project provided initial training in health care, energy, and hospitality and various construction occupations. The training effort responded to the need to rebuild the workforce after the devastation of Hurricanes Katrina and Rita.

Major Project Components:

- *Training.* Over 80 percent of the grant funded training programs, and 11 percent of the grant aided capacity-building efforts designed to sustain training after the grant project ended. The project supported 26 subgrants—the majority offering a combination of classroom and on-the-job training. Training programs for new and incumbent workers prioritized direct connections to employers, short-term training, and training in high-growth industries. Training relied on partnerships among the local One-Stop Career Centers, Louisiana Community Technical College Systems (LCTCS), community-based organizations, local unions, and employers. Some WIBs assisted potential trainees to complete applications and other paperwork.

Key Implementation Lessons:

- *Especially after a disaster, grant activities must be flexible to meet the shifting needs of the workers.* Some training programs reported high turnover rates due to lack of screening, career assessment, and resettlement difficulties. Resettlement proved especially difficult when training did not also include substantive supportive services and housing assistance. In response, training

programs offered classes during evenings and weekends and recruited additional incumbent workers and LCTCS recommended offering supportive services to trainees.

- *Strong employer focus is needed when rebuilding labor markets.* Louisiana's economy changed dramatically after Hurricanes Katrina and Rita. The new economic context of the area shifted and areas of high-growth and high-demand before the hurricanes did not always reflect new areas of high-growth and high-demand. The grant effort emphasizes rebuilding the business and workforce foundation that suffered or nearly disappeared immediately after the hurricanes. In response, the state emphasized projects with strong employer partnerships as well as incumbent worker training.

Key Partnering Agencies: Training relied on partnerships among the local One-Stop Career Centers, LCTCS, community-based agencies, local unions, and employers. WIBs conducted outreach and recruitment for the program, assisted with applications and other paperwork, entered client data into the state's MIS, tracked training completion and job placement, and reviewed and processed invoices. Employers recognized the value of the project because it occurred "at a time when they were struggling to put their own industries back in place" and this effort helped "to get the bills paid."

Post-Grantee Status (as of June 2007): The project trained 1,232 individuals, thus exceeding its goal of 1,124. Trainees and training providers can continue activities under the state Pathways program, a $5 million federal grant from the Department of Labor. The grant project served as a method in strengthening the working relationship among partner organizations, especially LDOL and LCTCS. Employers who saw successful skills development and job placement as a result of the project may be willing to support ongoing job training programs through cash and in-kind contributions.

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South Texas Advanced Manufacturing Apprenticeship

Grantee:	Lower Rio Grande Valley Workforce Investment Development Board
Subgrantee:	South Texas College
Location of Grant Activities:	South Texas (Hidalgo, Willacy, Starr and Cameron Counties)
Sector Targeted:	Advanced Manufacturing and Industry
Type of Grant:	Training and Capacity Building
Grant Amount:	$2,000,000
Match/Leveraged Amount:	$2,000,000
Grant Period:	1/1/05-12/31/06 (Extended to 8/30/2008)

Workforce Context: The passage of North American Free Trade Agreement in 1993, along with other factors, ended a period of high unemployment in the south Texas region, creating a rapid influx of advanced manufacturing employers on both sides of the U.S.-Mexican border. In particular, the Lower Rio Grande Valley has attracted manufacturers that have served as suppliers to the manufacturing facilities across the border in Mexico, as well as plants in other parts of Texas. As a result of the rapid industrialization of the area, local manufacturers found that there was a severe shortage of skilled manufacturing workers. Local manufacturers have cautioned that without adequate local training programs, they will not be able to expand and may be forced to relocate.

Project Goals: The grant is aimed at alleviating shortages of skilled manufacturing workers by upgrading the skills of incumbent workers, existing workers in local manufacturing facilities, and encouraging and preparing high school students to enter advanced manufacturing occupations. This effort is intended to support economic development efforts throughout the region by growing the pool of workers with advanced manufacturing skills. Over the long term, this initiative is aimed at increasing wage rates of production workers, while at the same time providing a pool of skilled workers that will attract new firms to the area (particularly advanced manufacturing firms).

Major Project Components:

- *The Apprenticeship Program*. Apprenticeship programs varying in duration from 3-4 years (176-216 hours) are provided for incumbent workers from local manufacturing firms. In addition, each apprentice is required to receive 2,000 OJT hours and to meet threshold requirements of hours in OJT related to certain types of skills (e.g., milling, grinding). After completion of an apprenticeship, participants receive an ETA-approved journeymen's certification, which is nationally recognized by employers. There is no union sponsorship or involvement in the apprenticeship program (though several of the 20 firms involved have unionized workforces); rather, the South Texas Manufacturers Association (STMA) is the sponsor of each of the apprenticeship programs and receives certification from ETA that each program meets apprenticeship requirements. Over the grant period, 270 incumbent workers were enrolled in the apprenticeships. The apprenticeship program include: (1) a four-year industrial maintenance program; (2) a four-year tool and die program; (3) a three-year machinist program; and (4) a plastics process technician program.

- *Pre-Apprenticeship/Skills Enhancement Program.*

    a. The pre-apprenticeship component aimed to boost enrollment in the apprenticeship program by improving math skills. Incumbent workers enrolled in this component were nominated by their employers, generally because they had failed to pass the math test administered by STC as a requirement to enter the apprenticeship program.

    b. The Skills Enhancement component provided highly targeted courses aimed at improving skills of incumbent workers at manufacturing firms in the service area. STMA-member employers nominated workers to attend skills enhancement courses, which were offered periodically and in response to employer needs/requests.

- *Career Pathways Program:* By facilitating enrollment of local high school students in for-credit courses at STC, this program component builds a direct pipeline from local high schools into STC's associate degree program to become a precision machine technician (PMT). In addition, the program aims to increase knowledge among students and teachers in the many well-paying and skilled manufacturing jobs in south Texas.

Key Implementation Lessons:

- *Recruitment of large numbers of program participants can be challenging.* Though enrollment goals were achieved, the grantee found that it was not easy to recruit firms and individuals into the initiative. Manufacturers in the area tend to be small and mid-sized firms, which meant that it was necessary to recruit small numbers of workers from 15 to 20 local firms in order to meet enrollment goals. In addition, low math skills among the population lowered the size of the pool of incumbent workers qualified to enter the program. STC staff indicated that recruitment of firms and apprentices was harder than anticipated and that the contract with STMA to aggressively recruit firms should have been initiated earlier.

- *Attrition from apprenticeship programs resulted from changing circumstances.* The apprenticeship program suffered from attrition rates estimated at in excess 50-60 percent. Most of the attrition occurred as a result of employer action (e.g., layoffs due to layoffs and plant closures) but some was due to loss of interest or conflicting priorities from participants.

- *OJT requirement not always easy to meet.* Because most employers were small or mid-sized firms, their production process and available equipment did not always provide apprentices with the opportunity to gain all of the skill competencies required to become well rounded within their trade, and to meet the broad skill requirements typically required under apprenticeship programs. However, many employers indicated that they had no problems providing the mix of skills required by the apprenticeship.

- *Firms and workers increasingly favor customized training over apprenticeships.* Firms in the McAllen area seem increasingly less interested in waiting four years for participants to complete their apprenticeships to become journeymen. As the initiative progressed, manufacturing firms appeared to be generally less interested in the longer-term commitment entailed in apprenticeship programs and to be more interested in sending workers to short-term, competency-based, and customized training.

Key Partnering Agencies: In addition to the grantee, the Lower Rio Grande Valley Workforce Development Board and the subgrantee, STC, manufacturing employers and the local manufacturing association, STMA, have played extensive and critical roles in this initiative. Program staff estimated that

a total of 20 manufacturing companies have partnered on this project, playing an important role in nominating incumbent workers for apprenticeships and sponsoring the OJT component during the apprenticeship. The McAllen Economic Development Corporation has ensured that businesses are heavily involved with STC and that STC is responsive to the needs of the business community. Six school districts partnered with STC on the Career Pathway Program component, helping with recruitment and coordinated attendance of high school juniors and seniors in this program component. Texas State Technical College and the University of Texas at Brownsville served as distance learning sites for program participants located in outlying areas.

Post-Grantee Status (as of October 2009): STC has been successful in obtaining a Workforce Innovation in Regional Economic Development (WIRED) grant (of $3 million) to continue and expand upon the efforts implemented under its HGJTI, and its earlier H-1B grant. Under the WIRED grant, the focus remains on building skills of incumbent workers in manufacturing firms and bringing new workers into high-wage, high-skill jobs in the manufacturing sector.

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Biosciences Job Growth Initiative (BJGI)

Grantee:	Miami-Dade College (MDC)
Location of Grant Activities:	Miami-Dade County, Doral and Homestead, Florida, and remote employer sites across the country
Sector Targeted:	Biotechnology
Type of Grant:	Training and Capacity Building
Grant Amount:	$1,000,000
Match/Leveraged Amount:	$1,370,000 in in-kind and cash contributions from MDC and employers; leveraged grants from U.S. Department of Education the Florida Department of Education
Grant Period:	6/05–6/07 (extended to 6/08)

Workforce Context: At the time of the grant application, the biotechnology industry in Florida and Miami-Dade County was considered an emerging industry. Three biotechnology research institutes, approximately 90 pharmaceutical companies, and over 100 biotechnology companies operate in the state, and more companies were locating there. These companies create jobs ranging from lab technicians to highly skilled and university-trained scientists. Entry-level lab technicians with technical training earn between $11.50 and $14.25 an hour. Higher paid scientists usually have four-year degrees in science (biology, chemistry, etc.) and additional practical training in biotechnology. Governor Jeb Bush developed a statewide economic development initiative to enhance biotechnology activities. In the region, the South Florida Bioscience Consortium leads regional and local efforts to attract biotechnology employers and build capacity to supply employers with skilled (and, ideally, local) workers. Thus, MDC decided to develop an associate degree and certificate program and an incumbent worker training program to meet the need for skilled workers regionally.

Project Goals: The Biosciences Job Growth Initiative (BJGI) identified the following goals:

a. increase capacity of education and training providers;
b. establish a pipeline to access untapped labor pools;
c. develop specialized skill sets and competency models;
d. train 800 incumbent and future Industrial Pharmaceutical Manufacturing (IPM) technicians and related workers;
e. increase retention by 30 percent annually;
f. introduce good manufacturing, lab, clinical, and documentation practices in IPM curricula, pedagogy, and industry processes; and
g. deliver IPM/Biosciences career guidance at all stages of lifelong learning.

Major Project Components: The following components focus on different types of training deployed by MDC and three employer partners. As of the end of the grant in 2008, the BJGI had trained 1,639 incumbent workers, exceeding its training goal of 800 workers. In addition, MDC reports that approximately 87 percent of trainees remained with their current employer at least six months after receiving training.

- *Adult Education and Workplace Skills Training.* One employer for new and current employees emphasized foundational business writing, ESL, and computer training. Needs assessments identified employees that could benefit from employee skill sets and effective communication. Another employer also identified employees with limited English language skills for ESL training.

- *IPM Competency Training.* All three employers used IPM competency training. Specifically, two employers received training in manufacturing and documentation practices. This training was also provided remotely through distance learning. In addition, two employers used regulatory compliance and contaminations training.

- *Management Training.* All three employers received management training, including Six Sigma project management and performance evaluation training.

- *Curriculum Development.* Training consultants and employer partner representatives developed and tailored a curriculum for IPM employees: basics of contamination control, good documentation practices, performance management, and project management.

- *Credit Associate Degree and Certificate Programs.* Employer and industry partners have also helped shape MDC Biotech Program curriculum to reflect industry requirements.

- *Increased Capacity of Education and Training Providers.* MDC is planning to train its own faculty and has trained a supervisor at one of the employers to be adjunct faculty for the Virtual College.

- *Pipeline for Untapped Labor Pools*. The BJGI and the Biotechnology Program have worked with Miami-Dade high schools to interest youth, especially minority youth, in biotechnology careers.

Key Implementation Lessons:

- *Expect and adjust for unforeseen delays in employer partner involvement.* Two major employer partners underwent changes that delayed their participation. One employer partner experienced a merger and its participation and contributions to the grant were delayed. Another employer had planned on a move to the area before the beginning of the grant but was unable to participate in the grant activities when the move was delayed. Additional employer recruitment for the project was necessary and new employers were able to participate.

- *Staff with knowledge in federal grants management and job training projects are helpful.* It took MDC about a year to find the right project manager for the grant. However, once it did, the grant activities were able to move very quickly because the new project manager knew how to work with federal grants and make the right connections to build the incumbent worker training program.

Key Partnering Agencies: Employer and industry association partnerships were critical in this initiative. MDC signed formal partnering agreements (usually in the form of Memoranda of Understanding) with three employers that provided job training. Two of the employers also helped develop the training curricula. Various industry groups participated in the BJGI. MDC staff attend regular meetings of the South Florida Biosciences Consortium and have working relationships with other industry and business representatives. The WIB sits on the advisory board for the Biotechnology Program and is working with the state to place biotechnology on the Targeted Industries List. The Miami-Dade Public Schools also

partnered with the BJGI and Biotechnology Program to help recruit minority youth through career days for and presentations to high school students.

Post-Grantee Status (as of June 2008): The incumbent worker program has helped to build credibility as a biotechnology training provider, which will help MDC attract more students for its credit-based programs. Continued work with employer partners to increase cost-sharing responsibilities as well as obtaining government or nonprofit grants remains critical for sustainability.

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APPENDIX B

Methodology for Nonexperimental Analysis of the Impacts of HGJTI Training

Methodology for Nonexperimental Analysis of the Impacts of HGJTI Training

This appendix presents the methodology for the nonexperimental impact analysis of the five HGJTI-funded training programs. It includes a discussion of the site selection, data, and the evaluation methods used. Results of the analysis of the impact of HGJTI-funded training programs on earnings are provided in Section IV of this report with accompanying tables provided in Appendix C.

A. Site Selection

The five grantee training projects were selected based on criteria necessary to conduct the nonexperimental analysis. These requirements are::

- Programs must provide occupational training that is directly related to a job in a specific industry;
- Programs must enroll an adequate number of participants necessary to obtain statistically significant impact estimates of program effectiveness
- Evaluators must be able to identify a pool of individuals that do not receive the training that can be reasonably compared to the training participants; and
- Reliable individual-level data reflecting the demographic and socioeconomic characteristics expected to affect participation in training programs and earnings for training participants and individuals in the comparison group must be available.

Identifying HGJTI grantees that have job training projects that meet all of these requirements is a challenge for a number of reasons. As discussed in the report, some grantees have used the funds to design and develop new curricula or instructional models, to focus on increasing the pipeline of individuals who might pursue a particular occupation, or to implement other capacity-building activities. Thus, not all grantees provide occupational job training. For those that do have training, the number of participants who receive training varies greatly, and many grantees do not have an adequate number of trainees to obtain statistically reliable estimates of outcomes. Finally, not all grantees provided training that is intended to increase employment and training outcomes in the near term. For example, the intended outcomes for the programs targeting youth are awareness and interest in the occupation and the development of preliminary skills to enter into occupational training. While the five sites selected best met the requirements for the analytic methods used in this component of the study, it should be noted that the sites are not ideal for such purposes. In particular, it would have been preferable to include projects with more participants or a longer follow-up period after training.

Table B.1 describes the five HGJTI grantees included in the impact analysis and the industry on which the grantees' training project focus and indicates which of the two analytic methods are used for each project, and the types of comparison groups drawn for the analysis.

TABLE B.1: HGJTI GRANTEES SELECTED FOR ANALYSIS BY ANALYTIC METHOD AND COMPARISON GROUP (PROPENSITY SCORE MATCHING AND REGRESSION DISCONTINUITY DESIGN)

Grantee	Industry	Analytic Methods	Comparison Groups
Carpenters Joint Apprentice Program	Construction/Advanced Manufacturing	PSM	WIA Participants
Chicago Women in Trades[a]	Construction	PSM	Training Project Nonparticipants
Columbia Gorge Community College	Health Care	PSM	WIA Participants
Community Learning Center	Aerospace	PSM RDD	WIA Participants (PSM) and Training Project Nonparticipants (RDD)
Lower Rio Grande Valley Workforce Development Board/ South Texas College	Advanced Manufacturing	PSM	WIA Participants

[a] For CWIT and STC, the original plan called for the RDD method. However, based on a review of the data, it was found that these sites did not use the test scores consistently for entry into the program (thus, no discontinuity), and an RDD is not possible. For STC, WIA data were available to draw a comparison group for PSM. However, for CWIT, a comparison group of nonparticipants (WIA participant data for CWIT are not available at this time) was used for PSM.

Note that the use of different comparison groups means that the program evaluations use different counterfactuals. In the sites where WIA participants constitute the comparison group, receipt of HGJTI training is being compared to WIA services; in the sites where nonparticipants comprise the comparison group, receipt of HGJTI training is being compared to no training or the services training applicants receive or seek out when they do not enroll in the HGJTI program. Both approaches are appropriate, but they answer different evaluation questions. This issue will be discussed further in the methodology and will be specifically addressed in the analysis of each site.

B. The Data

The primary sources of data are: 1) program data from the selected HGJTI grantees; and 2) data from state administrative reporting systems that maintain information on earnings and employment of workers – including quarterly Unemployment Insurance (UI) earnings records and Workforce Investment Act (WIA) participant data.

Individual-level data on training participants were collected from all five grantees. These data contain, at a minimum, some demographic information, program entry and completion dates, date of birth, and social security numbers. Some sites were also able to provide data on program activities, test scores, previous and current employment, education, and public assistance receipt. In the site where the comparison pool was drawn from the site's applicants who did not enter the program (CWIT), the site also provided us with data from the application and test scores for those in the comparison pool. In sites where the comparison group was drawn from the WIA program, the data that the local programs submit to the state, which include demographic data and information on services received, were obtained.

For some grantees, a comparison pool was drawn from the WIA participants in the same geographic area who received WIA services (core and intensive) during the period that the HGJTI participants were enrolled. The decision to use WIA participants as a comparison group was based on interviews with HGJTI grantee staff and local WIB and One-Stop Career Center staff. According to interviewees and program documents, the sites received referrals to their training programs from the local workforce investment system and the assumption could be made that the participants from the HGJTI and WIA programs were being drawn from the same pool of candidates. For the four sites (CJAP, CGCC, CLC, and STC) where the PSM approach with a comparison group of WIA participants is used, the states (Missouri, Oregon, and Texas) provided WIA administrative data for customers who enrolled in the period when the demonstrations were in operation. Due to the short duration of the HGJTI training, WIA training participants were omitted as a part of the comparison group. It was inappropriate to include WIA training participants who were in longer-term training during the follow-up period because their data did not always reflect post-program earnings because many were still in training.

The states (Illinois, Missouri, Oregon, and Texas) in which the HGJTI grantees operated provided unemployment insurance (UI) earnings record data, which are collected on a quarterly basis, for the individuals in the participant and comparison groups.[1] For each of these individuals, earnings data for at least two years prior to entry into the HGJTI program (or into the comparison group) and for at least six months after completing the HGJTI program (or the comparison group) were collected. Because some of the program participants just completed training in 2007, the follow-up period for the earnings data is limited. Estimates of earnings impacts for at least six months after training are provided for all sites. For the CLC site, estimates for 18 months (six quarters) after entry into training are presented because data availability allows for longer-term analysis of employment and earnings.

C. The Evaluation Methods

Because the evaluation was implemented after the training programs commenced, nonexperimental methods were used to estimate the impact of the HGJTI program on participants' employment and earnings as compared to a similar group of individuals. The following sections describe the overall approach used to determine the early impacts of the HGJTI training, the available covariates, and the use of PSM and RDD conducted to determine the impacts.

Estimating Impacts of HGJTI Training

For this evaluation, the dependent variables are: 1) earnings in quarters after program entry; and 2) the difference between earnings in quarters after program entry and earnings in quarters prior to program entry. The earnings data available consist of eight quarters of preprogram earnings and two quarters of earnings after program entry for all sites with the exception of CLC, which has data for six quarters after program entry. The sample sizes for estimating longer-term

[1] In two sites, employment for training participants crossed state borders. Cross-border employment occurred for the CJAP program, which took place in eastern Missouri, with some participants and comparison group members with employment in Illinois. The CGCC staff reported employment of participants across the Oregon-Washington border. However, we were unable to obtain UI quarterly wage records from Washington State for this project.

impacts would be very small if additional quarters of postprogram entry earnings were used because some participants exited the program too recently for long-term follow-up earnings data to be available.

In both the PSM and RDD methods, two outcome variables were used to derive the impact of training:[2]

1. The difference in the means of earnings in the quarters after program entry between the treatment and comparison groups; and
2. The "difference-in-difference" of preprogram earnings and earnings in quarters after program entry for the treatment and comparison groups (referred to as a difference-in-difference (DID) estimator).

Mueser, Troske, and Gorislavsky (2007) conducted analyses using both postprogram earnings and the difference between post- and preprogram earnings as the dependent variable. Caliendo and Kopenig (2005) also suggested using a DID estimator. When they tested for misspecification, Mueser et al. preferred the DID estimators because the DID models performed better in creating comparison groups that were well matched to the treatment group. Citing Ashenfelter and Card (1985), Mueser et al. used symmetric periods around the entry quarter for the DID estimators because "taking differences for periods symmetric around the enrollment quarter assures that the difference-in-difference estimator is valid in the case where there is autocorrelation in the transitory component of earnings."

The rationale for using both DID and level of postprogram entry earnings as dependent variables was that the two approaches make different assumptions about how to deal with unobservable variables. If these matching and estimation strategies fully account for observed and unobserved differences between the treatment and comparison groups, then both approaches should yield the same impact estimates. If the approaches produce different findings, this is a sign that at least one of the approaches is not controlling completely for unobserved differences.

The analysis for the HGJTI evaluation could not fully replicate one aspect of the Mueser et al. approach to DID estimation – the symmetric pre- and postprogram periods. Their two DID base periods – the fifth and sixth quarters, and the seventh and eighth quarters before program entry – corresponded with the fifth and sixth, and the seventh and eighth quarters after entry. As noted above, our sample size declines significantly when a longer postprogram period is used. If a relatively short postprogram period is used to avoid having a small sample, and if we pick a preprogram period that is symmetric around program entry, there is a strong risk of using a preprogram period that has a large transitory dip in earnings that precedes enrollment in training, the "Ashenfelter dip." We therefore use asymmetric pre- and postprogram periods to create our two DID estimators.

[2] Bootstrapped standard errors were used to account for the error introduced by estimating the initial propensity score.

Covariates

The covariates used in the matching and outcome analyses are described in this section. Most grantees maintain just basic information on participants, so the matching relied primarily on available demographic variables and prior labor market experience. They are:

- ***Ethnicity and race.*** For both the treatment group and the comparison group pool, variables indicating race and Hispanic status were constructed.
- ***Age.*** Age of the participants at the time of entry and its squared term were included in the analysis.
- ***Gender.*** Gender of the individuals in the participant and comparison groups were included to capture important differences in earnings for men and women. Mueser et al., for example, also provided the impact estimates by gender. In two sites, CWIT and CGCC, there were few or no men, so only the data for women were analyzed in those sites. In CJAP and STC, very few women participated in the program so they were dropped from the analysis. Only in the propensity score analysis of CLC was the analysis run separately for men and women.
- ***Education.*** For both treatment and comparison samples, categorical variables (e.g., 0-11, 12, 13-15, 16+ years of education) were used. Sites provided varied data on education, usually receipt of high school diploma or completion of post-secondary education. rather than years of education; in some sites, this information was converted to the categories above. Using categorical variables rather than years of education was a more flexible specification, as it permitted the effects of an additional year of education to vary. Data on the comparison groups from WIA reporting systems, if available, also were converted to categories. If education data were missing for some participants, a category for missing education data was included so as not to lose sample members. Some sites did not record education data, and thus, education terms are not included in the analysis.
- ***Prior labor force status and earnings.*** Quarterly earnings and employment status for two years prior to the quarter of enrollment were used, although Heckman and Smith (1999) caution that prior earnings are not as useful a covariate as labor market status in the preprogram period. Specifically, quarterly earnings and their squared counterparts for each of the eight quarters prior to the time of enrollment were used and scaled in 2008 dollars.[3] Controls for labor market transitions were constructed by including the number of transitions between work and no work in adjacent quarters in the preprogram period. Additionally, a variable indicating the number of quarters the individual worked in the eight quarters prior to entry or application was also used.
- ***Changing economic conditions.*** Economic conditions were captured mainly by unemployment rates. Covariates on unemployment rates for different times during the program period of performance were included in the analysis. For example, there was a great deal of variation in the unemployment rate over this period, ranging from 4.7 percent to 8.0 percent in the area where the CGCC program operated. It was likely that the unemployment rate could affect the propensity to enroll and the impacts of the training. Another temporal issue considered was modest inflation over the period of enrollment and the postprogram period. Many evaluations of training programs,

[3] Observations with quarterly earnings in the pre- and postprogram periods over $50,000 were dropped from the analysis as this is likely due to random error in the UI wage records.

including Orr et al. (1996) and Mueser et al., appeared to ignore price changes, but a reasonable case can be made for using real dollars for the analysis. For example, inflation was moderate in Oregon over this period, with price increases ranging from roughly 1 to 2 percent over each six-month period. To account for inflation, all earnings figures were converted into real terms (2008 dollars).

Propensity Score Matching

While there is debate among evaluation experts about how effective PSM is as an alternative to random assignment, PSM can be a useful approach when random assignment is not possible and a viable comparison group is available.[4] For four of the HGJTI-funded training programs in this evaluation, a comparison group was drawn from a group of WIA participants who were from the same geographic region,[5] who were served at the same time as the treatment group, and who were similarly motivated to find employment and/or new career options. For the fifth program, where WIA data were not available, nonparticipants who applied and who tested for entry into the program but did not end up participating were used as the comparison group.[6]

In four of the training programs—CGCC, CJAP, CWIT, and STC, there was no obvious alternative to PSM, except for variations on matching that have less appeal.[7] However, for the CLC training program, it was possible to use both PSM and RDD methods. For all these sites, PSM was used by undertaking specification analyses to see if the testable assumptions of the PSM approach were supported and by making use of sensitivity analysis to see if the results were stable, as the matching strategy was varied. Of course, stable results do not guarantee that the results are correct. To implement this approach, the work of Mueser et al. (2007) and Smith and Todd (2005) served as the basis for conducting several variations in the PSM approach to see if the impact estimates were sensitive to the specific strategy used. While no experimental data were available to compare with our findings, results from prior studies were compared to the estimates obtained in this evaluation to determine if they are similar in magnitude.

Although the basic approach to PSM is fairly simple, there are numerous variations that can be used; however, not all matching strategies are equal (Cook, Shadish, and Wong forthcoming; Mueser et al. 2007; Smith and Todd 2005). If every variation available is used, it would result in hundreds of impact estimates for each site. On the other hand, if only one

[4] In several exercises where PSM was used in a situation where a randomly assigned control group was also available, PSM either did not produce the results obtained with random assignment, or the findings were sensitive to how the matching was performed. See Smith and Todd (2005), Bloom et al. (2002), and Wilde and Hollister (2007) for examples where PSM failed to consistently provide the same impact estimates as random assignment.

[5] In the CGCC site, the comparison group was drawn from a larger area than the treatment group because there were too few potential comparison group members available from the area where participants were drawn. Discussions with state and local officials indicated that the larger area – the workforce investment area that included the Columbia Gorge region – had similar economic, demographic, and geographic aspects as the Columbia Gorge area.

[6] Bell et al. (1995) used this approach in an evaluation of a training program for home health aides where the primary evaluation relied on random assignment, and they found that this approach produced similar impact estimates to what was obtained when random assignment was used.

[7] Some studies have used Mahalinobis matching, where comparison group members are matched to the treatment group by selecting the nearest neighbor on a set of characteristics, but the measure of distance appears arbitrary in comparison to PSM where matching is on the basis of likelihood to enroll in the program.

specification is presented, there is a risk of presenting impact estimates that depend on the single specification selected. Thus, it was important to determine whether the impact estimates are sensitive to the strategy selected. To preempt any perception of trying to reach any particular findings, it was also important that the general procedures used were specified in advance of the estimation and that all results are made available to readers.

In implementing PSM, the treatment group is combined with an appropriate comparison group pool, and the probability of entering the program (the "propensity" to enroll in the program) is estimated as a function of a set of variables thought to be associated with the likelihood of program enrollment. Next, an estimate of the expected outcome level (earnings in this case) the treatment group would have obtained without the treatment is estimated by using the propensity scores to appropriately weight comparison group pool members. Finally, the program's impact on earnings is estimated by subtracting the mean estimated outcome that the treatment group would have obtained without the treatment from the mean actual outcome level for the treated group; in addition, regression analysis can be used to further adjust for differences between the treatment and comparison groups on observable variables. One broad family of approaches matches one or more comparison group pool members to each treatment group member. In those approaches, decisions must be made on matching criteria, such as whether the sampling is with or without replacement, whether one or multiple comparison group members are selected for each treatment group member, how far apart the propensity scores can be for a match to be considered adequate (a caliper), and the variables to be included in the estimation of the propensity score.

As Mueser et al. noted, there is generally a tradeoff between bias and precision. For example, including the five closest comparison group members rather than one increases precision because of the larger sample size, but the matches will not be as good, thus possibly increasing bias. Other approaches that have been used include strategies where weighted averages are computed within strata and where rather than matching a fixed number of comparison group pool members to each treatment observation, all or many observations are matched to each treatment group member using a weighting scheme with a particular distribution (kernel density function), a local linear regression, or the odds of the propensity score. The specific procedures for this evaluation are described below.

In this analysis, the three general estimation strategies selected and implemented were nearest neighbor, propensity odds ratio weighting, and kernel density weighting. Monte Carlo simulations have indicated that two of the approaches, kernel density weighting and odds ratio weighting, generally perform well on bias and variance grounds. Nearest neighbor matching has the most intuitive appeal and does well in simulations in terms of having low bias, but this approach generally has higher variance than the other approaches used. For all three approaches, logit models were estimated to provide the probability of each member of the treatment and comparison group enrolling in the program. The dependent variable for the logit equation was program participation, and the covariates included labor market and demographic information for each person. For the nearest neighbor matching, one or more "nearest neighbors" were selected from the comparison group pool, defined as having the closest probability of enrollment, for each member of the treatment group. To improve the quality of the matching for all treatment group

members, the five nearest neighbors were selected and matched with replacement by allowing a comparison group member to be matched to more than one treatment group member.

In kernel density weighting, for each member of the treatment group, a weighted average of the outcomes for all comparison group members was computed over a specified bandwidth, where the weights were determined by a density function and the distance, as measured by the difference in propensity scores between the treatment group member and the comparison group member, of each comparison group pool member from the given treatment group member. Then, the weighted average of the earnings for the comparison group was subtracted from the earnings from each of the treatment group members and a simple average is calculated to derive the impact estimate. For kernel matching, two parameters were specified—the shape of the kernel function and the bandwidth. Based on a review of the literature on this strategy, the impact estimates are usually not highly sensitive to the parameters selected, and only one of the three most commonly specified kernel functions (the Gaussian function) was used and the bandwidth used were 0.02 and 0.08.

The third approach, odds ratio weighting, is similar to kernel density weighting. Instead of weighting comparison group observations by the kernel density function, the observations were weighted by the odds ratio of the propensity score, P/(1-P). Smith and Todd (2005) suggested odds ratio weighting as an appropriate strategy, and recent work by Busso, DiNardo, and McCrary (2008) showed that odds ratio weighting performs well compared to alternative propensity score matching approaches in Monte Carlo simulations.

Balancing tests were conducted as described in Smith and Todd to see if the treatment and comparison groups were reasonably balanced on the covariates once properly weighted using the methods above. Although it is never possible to tell how well the match performs on unobservable variables, these types of analyses provided some indication of how confident to be in interpreting the impact estimates. Two approaches to test the balance between treatment and matched comparison groups were used – a two-sample t-test and a standardized bias test. The two-sample t-test is used to see if there are significant differences in covariate means in the treatment and comparison sample. This approach is suggested by Caliendo and Kopeinig and was proposed earlier by Rosenbaum and Rubin (1985). The second balancing test used computed the "standardized differences" between the treatment and comparison groups on the covariates. Smith and Todd used both of these approaches in their tests of alternative PSM strategies. However, they note that there is little agreement on what value the standardized bias test should be for the matched samples to be considered balanced Thus, this analysis will rely primarily on the two-sample t-test but the results of the standardized bias tests will also be reported. Any standardized bias test value of 20 or greater is considered "large" and the sample unbalanced (Rosenbaum and Rubin 1985). If the matching did not produce a good match, higher order and interaction terms were added to the models to see if such procedures remove the discrepancy, as suggested by Caliendo and Kopeinig.[8]

[8] Mueser et al. indicate that they estimate propensity scores using "a highly flexible functional form allowing for nonlinear effects and interactions." Peter Mueser, lead author of the report, was consulted to learn about their specification for estimating the propensity score.

Regression Discontinuity Design

After conducting several tests to determine if a regression discontinuity design existed in the way the programs enrolled individuals, only one HGJTI-funded training program was considered appropriate for a RDD. In using RDD, unbiased estimates of the treatment effect can be obtained because the selection mechanism is fully accounted for by the selection variable. The RDD approach is generally attributed to Thistlewaite and Campbell (1960), but the technique has recently drawn the attention of economists, particularly since Hahn, Todd, and Van Der Klaauw (2001) presented formal proofs of the approach's value. The modern literature on RDD defines the approach more broadly, provides a number of specification tests to determine if the underlying assumptions are met, and provides several alternative estimation techniques. These are discussed below, relying particularly on the discussion in Imbens and Lemieux (2008) and Imbens and Wooldridge (2008). The RDD approach is widely considered to be one of the strongest nonexperimental designs. The assumptions underlying its use can generally be validated, and there are a number of approaches that can be used to determine if it is appropriate.

Before implementing the RDD approach, tests were conducted to determine if a regression discontinuity design was used by the projects that based admission into the training program on passing a test.[9] To do this, a table dividing the sample into 10 (or some other number) equal size groups based on the value of the screening variable was constructed, and for each group the proportion of the group that entered the program was determined. A "strong RDD" has zero probability of entry below the cutoff and 100 percent above that. A fuzzy RDD occurs where some applicants get in below the cutoff and some with passing scores do not participate. If neither pattern holds, propensity score matching will be used instead; the CWIT and STC sites fall into this category.

Another test for the RDD is an approach suggested by Imbens and Wooldridge, in which graphical analysis is used to confirm that the RDD model is applicable. In this analysis, the outcome variable (earnings for this case) was graphed by the covariate used to determine treatment status (the test score). This meant dividing the sample into equal-bandwidth groups and plotting the mean value of the dependent variable (Y) against the midpoint of the covariate for the group. It was more important that the cutoff for selection be the end of one group and the beginning of the next than having equal size groups. If there was no discontinuity at the cutoff, there was unlikely to be an impact using more sophisticated techniques.

Next, a plot of the major covariates against the mean Y was constructed. Here, a discontinuity should *not* be observed at the cutoff. If there were a discontinuity, then the jump in Y may be due to the other covariate, not the treatment. Residuals from the regressions were also plotted against the test score variable. This helped to identify heteroskedasticity issues and nonlinearities not captured in the model. Finally, it was necessary to check to see if the number of observations in each group seemed to vary in an odd manner around the cutoff. If, for example, a very small number right below the cutoff was observed, this could be evidence that the staff are manipulating the scores or that a self-selection mechanism is present.

[9] Much of this and the following section is based on material in Imbens and Lemieux (2008) and Imbens and Wooldridge (2008), as well as discussions with economist Jeffrey Smith at the University of Michigan.

The original RDD literature assumed a linear response function with a step increase due to the intervention. While such models are easy to estimate and interpret, there is no reason for the world to be so simple. For this analysis, a band on either side of the cutoff was selected and linear models for each side of the cutoff were estimated. To combine these into a single model, a dummy variable for the treatment status (where the dummy indicates the offer of treatment, not acceptance) and interaction terms for the dummy multiplied by the screening variable were added. (Note that the smaller the band is, the more reasonable the linearity assumption is but the smaller the sample is.) As the band of observations included was extended, it was important to allow for nonlinearities by adding higher orders of the screening variable.

Once the steps described above were implemented, local linear regressions are used as the estimating approach (Imbens and Wooldridge 2008; Smith and Todd 2005; Heckman, Ichimura and Todd 1997; Pagan and Ullah 1999; Li and Racine 2006). Finally, sensitivity analyses were conducted by varying the bandwidth used in the analyses, experimenting with higher order polynomials of the selection variable, and using local linear regression as well as ordinary least squares regression.

D. Conclusion

This methodological description summarizes the design used for estimating the early impacts of the job training activities implemented by five HGJTI-funded programs. Because this methodology was developed after the programs were implemented, it was necessary to use nonexperimental methods—PSM and RDD—to draw comparison groups from a pool of individuals who are similar to those who received HGJTI-funded training. As the PSM and RDD strategies for estimating the impacts were implemented, sensitivity analyses were key to determining how stable the results across the procedural variations tested were. Details of these analyses are provided for each of the training programs in Chapter IV of the report.

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APPENDIX C

Descriptive Statistics and Treatment Effects

Table C.1: CJAP Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group			Comparison Group		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Black	209	77.99%	41.53 %	2172	58.20%	22.99%
White	209	20.57%	40.52%	2172	39.82%	22.81%
Hispanic	209	0%	0%	2172	0%	0%
Other Race	209	1.44%	11.92%	2172	1.99%	6.50%
Age at enrollment	209	34.66	10.99	2172	40.41	11.69
Number of labor force transitions in the two years before enrollment	209	1.25	1.33	2172	1.5626	1.2913
Real Earnings (in 2008 dollars), 8 quarters before enrollment	209	$1747.52	$3019.16	2172	$4809.14	$5824.47
Real Earnings (in 2008 dollars), 7 quarters before enrollment	209	$1701.78	$2756.86	2172	$4676.05	$5750.98
Real Earnings (in 2008 dollars), 6 quarters before enrollment	209	$1897.58	$2973.34	2172	$4755.12	$6003.72
Real Earnings (in 2008 dollars), 5 quarters before enrollment	209	$1780.50	$2728.44	2172	$4624.01	$5710.65
Real Earnings (in 2008 dollars), 4 quarters before enrollment	209	$1771.88	$2625.63	2172	$4420.7	$5357.45
Real Earnings (in 2008 dollars), 3 quarters before enrollment	209	$1729.11	$2642.94	2172	$4291.39	$5404.93
Real Earnings (in 2008 dollars), 2 quarters before enrollment	209	$1526.83	$2344.37	2172	$3994.51	$5374.19
Real Earnings (in 2008 dollars), 1 quarter before enrollment	209	$1286.81	$2372.18	2172	$3263.19	$5033.83
Real Earnings (in 2008 dollars), in the quarter of enrollment	209	$1613.06	$2456.97	2172	$3610.57	$4652.95
Real Earnings (in 2008 dollars), 1 quarter after enrollment	209	$2413.53	$3039.62	2172	$4667.36	$4838.69
Real Earnings (in 2008 dollars), 2 quarters after enrollment	209	$2493.16	$2993.51	2172	$4482.23	$4974.05
Employment rate, 8 quarters before enrollment	209	47.36%	50.05%	2172	63.90%	48.03%
Employment rate, 7 quarters before enrollment	209	47.84%	50.07%	2172	63.85%	48.05%
Employment rate, 6 quarters before enrollment	209	49.28%	50.11%	2172	64.91%	47.73%
Employment rate, 5 quarters before enrollment	209	47.94%	50.07%	2172	65.65%	47.49%
Employment rate, 4 quarters before enrollment	209	51.67%	50.09%	2172	65.79%	47.45%
Employment rate, 3 quarters before enrollment	209	51.19%	50.10%	2172	64.87%	47.74%
Employment rate, 2 quarters before enrollment	209	51.19%	50.10%	2172	62.93%	48.30%
Employment rate, 1 quarters before enrollment	209	45.93%	49.95%	2172	59.25%	49.14%
Employment rate, in the quarter of enrollment	209	55.50%	49.81%	2172	77.25%	41.92%
Employment rate, 1 quarter after enrollment	209	64.59%	47.93%	2172	77.34%	41.86%
Employment rate, 2 quarters after enrollment	209	62.67%	48.48%	2172	72.69%	44.56%
Number of quarters employed in the two years before enrollment	209	3.92	2.97	2172	5.11	2.9
Unemployment rate, quarter 1 before enrollment	209	5.05%	0.48%	2172	5.37%	0.46%
Unemployment rate, quarter 2 before enrollment	209	4.89%	0.48%	2172	5.42%	0.52%

Table C.2: CWIT Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group			Comparison Group		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Black	337	51.63%	50.04%	604	66.05%	47.38%
White	337	23.73%	42.61%	604	23.73%	42.61%
Hispanic	337	18.69%	39.04%	604	15.23%	35.96%
Other Race	337	5.93%	23.66%	604	9.27%	29.02%
Age at enrollment	337	31.85	8.14	604	35.24	9.92
Number of labor force transitions in the two years before enrollment	337	0.93	1.15	604	0.99	1.19
Real Earnings (in 2008 dollars), 8 quarters before enrollment	337	$3449.50	$5084.01	604	$2551.05	$3902.76
Real Earnings (in 2008 dollars), 7 quarters before enrollment	337	$3225.16	$4034.81	604	$2647.07	$3874.52
Real Earnings (in 2008 dollars), 6 quarters before enrollment	337	$3067.22	$3857.29	604	$2608.49	$3721.83
Real Earnings (in 2008 dollars), 5 quarters before enrollment	337	$3545.71	$5242.98	604	$2665.38	$3856.59
Real Earnings (in 2008 dollars), 4 quarters before enrollment	337	$3171.28	$4894.88	604	$2649.34	$3954.71
Real Earnings (in 2008 dollars), 3 quarters before enrollment	337	$3147.67	$4101.75	604	$2703.77	$3802.82
Real Earnings (in 2008 dollars), 2 quarters before enrollment	337	$3158.35	$4501.57	604	$2659.71	$3804.21
Real Earnings (in 2008 dollars), 1 quarter before enrollment	337	$3039.33	$4531.90	604	$2589.63	$3954.64
Real Earnings (in 2008 dollars), in the quarter of enrollment	337	$2805.83	$5001.81	604	$2256.44	$3808.95
Real Earnings (in 2008 dollars), 1 quarter after enrollment	337	$2819.04	$3721.42	604	$2579.58	$3549.09
Real Earnings (in 2008 dollars), 2 quarters after enrollment	337	$3394.78	$3926.73	604	$2644.22	$3450.91
Employment rate, 8 quarters before enrollment	337	60.23%	49.01%	604	49.00%	50.03%
Employment rate, 7 quarters before enrollment	337	59.94%	49.07%	604	51.98%	50.00%
Employment rate, 6 quarters before enrollment	337	60.83%	48.88%	604	50.82%	50.03%
Employment rate, 5 quarters before enrollment	337	63.50%	48.21%	604	53.80%	49.89%
Employment rate, 4 quarters before enrollment	337	62.90%	48.37%	604	52.31%	49.98%
Employment rate, 3 quarters before enrollment	337	59.95%	49.07%	604	53.14%	49.94%
Employment rate, 2 quarters before enrollment	337	64.09%	48.04%	604	53.14%	49.94%
Employment rate, 1 quarters before enrollment	337	65.57%	47.58%	604	52.98%	49.95%
Employment rate, in the quarter of enrollment	337	62.61%	48.45%	604	51.82%	50.00%
Employment rate, 1 quarter after enrollment	337	64.68%	47.86%	604	59.27%	49.17%
Employment rate, 2 quarters after enrollment	337	73.59%	44.15%	604	58.94%	49.23%
Number of quarters employed in the two years before enrollment	337	4.97	2.97	604	4.17	3.12
Unemployment rate, quarter 1 before enrollment	337	4.97%	0.76%	604	5.15%	0.80%
Unemployment rate, quarter 2 before enrollment	337	5.34%	0.75%	604	5.39%	0.88%

Table C.3: CGCC Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group			Comparison Group		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Black	180	0.56%	7.45%	770	0.64%	8.03%
White	180	87.22%	33.48%	770	83.50%	37.13%
Hispanic	180	4.44%	20.67%	770	9.22%	28.95%
Other Race	180	3.89%	19.39%	770	6.36%	24.42%
Missing Race	180	3.89%	19.39%	770	0.25%	5.09%
Age at enrollment	180	34.31	11.37	770	40.39	12.26
Number of labor force transitions in the two years before enrollment	180	0.82	1.15	770	0.82	1.04
Real Earnings (in 2008 dollars), 8 quarters before enrollment	180	$1390.47	$2193.00	770	$2367.87	$3225.59
Real Earnings (in 2008 dollars), 7 quarters before enrollment	180	$1419.11	$2232.17	770	$2513.81	$3360.32
Real Earnings (in 2008 dollars), 6 quarters before enrollment	180	$1444.99	$2211.92	770	$2590.10	$3393.30
Real Earnings (in 2008 dollars), 5 quarters before enrollment	180	$1555.65	$2226.60	770	$2700.59	$3463.11
Real Earnings (in 2008 dollars), 4 quarters before enrollment	180	$1589.66	$2301.45	770	$2626.30	$3388.96
Real Earnings (in 2008 dollars), 3 quarters before enrollment	180	$1658.63	$2405.42	770	$2520.51	$3393.38
Real Earnings (in 2008 dollars), 2 quarters before enrollment	180	$1541.67	$2149.25	770	$2336.55	$3251.11
Real Earnings (in 2008 dollars), 1 quarter before enrollment	180	$1480.54	$2034.55	770	$1955.10	$3045.04
Real Earnings (in 2008 dollars), in the quarter of enrollment	180	$1767.97	$1892.34	770	$1560.71	$2532.49
Real Earnings (in 2008 dollars), 1 quarter after enrollment	180	$2879.25	$2316.32	770	$3436.91	$2689.22
Real Earnings (in 2008 dollars), 2 quarters after enrollment	180	$2880.00	$2754.05	770	$3282.89	$2826.75
Employment rate, 8 quarters before enrollment	180	45.00%	49.88%	770	50.64%	50.02%
Employment rate, 7 quarters before enrollment	180	45.55%	49.94%	770	52.85%	49.95%
Employment rate, 6 quarters before enrollment	180	45.55%	49.94%	770	52.98%	49.94%
Employment rate, 5 quarters before enrollment	180	47.22%	50.06%	770	55.84%	49.68%
Employment rate, 4 quarters before enrollment	180	48.33%	50.11%	770	56.10%	49.65%
Employment rate, 3 quarters before enrollment	180	49.44%	50.13%	770	55.19%	49.76%
Employment rate, 2 quarters before enrollment	180	51.11%	50.12%	770	52.72%	49.95%
Employment rate, 1 quarters before enrollment	180	50.00%	50.13%	770	48.83%	50.01%
Employment rate, in the quarter of enrollment	180	68.88%	46.42%	770	63.50%	48.17%
Employment rate, 1 quarter after enrollment	180	73.33%	44.34%	770	81.81%	38.59%
Employment rate, 2 quarters after enrollment	180	71.11%	45.45%	770	77.92%	41.50%
Number of quarters employed in the two years before enrollment	180	3.82	3.25	770	4.25	3.19
Unemployment rate, quarter 1 before enrollment	180	7.05	1.26	770	6.70	1.08
Unemployment rate, quarter 2 before enrollment	180	7.50	1.25	770	7.09	1.15
High school graduate	180	98.33%	12.84%	770	88.31%	32.14%

Table C.4: CLC RDD Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group (above TABE cutoff)			Comparison Group (below TABE cutoff)		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Number of labor force transitions in the two years before enrollment	617	0.81	1.04	333	0.80	1.03
Real Earnings (in 2008 dollars), 8 quarters before enrollment	617	$7404.27	$6410.97	333	$6713.78	$6003.21
Real Earnings (in 2008 dollars), 7 quarters before enrollment	617	$7100.26	$6094.57	333	$6409.86	$5741.54
Real Earnings (in 2008 dollars), 6 quarters before enrollment	617	$7218.33	$6289.59	333	$6146.88	$5472.87
Real Earnings (in 2008 dollars), 5 quarters before enrollment	617	$7189.77	$6368.16	333	$6144.47	$5710.32
Real Earnings (in 2008 dollars), 4 quarters before enrollment	617	$6871.57	$5889.90	333	$5752.17	$5522.97
Real Earnings (in 2008 dollars), 3 quarters before enrollment	617	$7011.64	$6077.32	333	$5286.43	$5155.42
Real Earnings (in 2008 dollars), 2 quarters before enrollment	617	$6611.79	$6169.28	333	$4651.06	$5053.16
Real Earnings (in 2008 dollars), 1 quarter before enrollment	617	$5650.55	$6198.76	333	$4065.86	$5448.69
Real Earnings (in 2008 dollars), in the quarter of enrollment	617	$3823.69	$5230.68	333	$3336.02	$5340.78
Real Earnings (in 2008 dollars), 1 quarter after enrollment	617	$4002.35	$4488.30	333	$3115.17	$3909.73
Real Earnings (in 2008 dollars), 2 quarters after enrollment	617	$5676.02	$5127.61	333	$4228.00	$4351.16
Employment rate, 8 quarters before enrollment	617	74.71%	43.49%	333	75.97%	42.78%
Employment rate, 7 quarters before enrollment	617	75.85%	42.83%	333	75.07%	43.32%
Employment rate, 6 quarters before enrollment	617	75.68%	42.93%	333	72.37%	44.78%
Employment rate, 5 quarters before enrollment	617	74.39%	43.68%	333	70.87%	45.50%
Employment rate, 4 quarters before enrollment	617	77.14%	42.02%	333	69.36%	46.16%
Employment rate, 3 quarters before enrollment	617	77.47%	41.81%	333	68.76%	46.41%
Employment rate, 2 quarters before enrollment	617	75.04%	43.31%	333	67.86%	46.76%
Employment rate, 1 quarters before enrollment	617	67.42%	46.90%	333	60.06%	49.05%
Employment rate, in the quarter of enrollment	617	63.53%	48.17%	333	55.25%	49.79%
Employment rate, 1 quarter after enrollment	617	72.12%	44.87%	333	62.46%	48.49%
Employment rate, 2 quarters after enrollment	617	81.03%	39.23%	333	69.66%	46.03%
Number of quarters employed in the two years before enrollment	617	5.97	2.58	333	5.60	2.81
Unemployment rate, quarter 1 before enrollment	617	5.61%	0.50%	333	5.71%	0.45%
Unemployment rate, quarter 2 before enrollment	617	5.78%	0.57%	333	5.90%	0.49%

Table C.5: CLC Male PSM Analysis Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group			Comparison Group		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Black	150	16.67%	37.39%	4687	51.08%	49.99%
White	150	61.33%	48.86%	4687	32.11%	46.69%
Hispanic	150	14.00%	34.81%	4687	13.61%	34.30%
Asian/Pacific Islander	150	8.00%	27.22%	4687	3.20%	17.60%
Age at enrollment	150	39.98	11.61	4687	36.59	11.99
Number of labor force transitions in the two years before enrollment	150	0.81	1.04	4687	0.82	1.09
Real Earnings (in 2008 dollars), 8 quarters before enrollment	150	$4298.44	6321.55	4687	$3528.75	$5753.89
Real Earnings (in 2008 dollars), 7 quarters before enrollment	150	$4250.40	6051.91	4687	$3518.21	$5669.97
Real Earnings (in 2008 dollars), 6 quarters before enrollment	150	$4487.92	6544.98	4687	$3552.23	$5806.43
Real Earnings (in 2008 dollars), 5 quarters before enrollment	150	$4307.73	6275.88	4687	$3464.33	$5729.16
Real Earnings (in 2008 dollars), 4 quarters before enrollment	150	$4086.28	5901.32	4687	$3313.21	$5490.46
Real Earnings (in 2008 dollars), 3 quarters before enrollment	150	$4165.06	6156.09	4687	$3271.25	$5502.38
Real Earnings (in 2008 dollars), 2 quarters before enrollment	150	$4524.70	6908.91	4687	$2933.98	$5168.91
Real Earnings (in 2008 dollars), 1 quarter before enrollment	150	$4196.52	5858.12	4687	$2444.06	$4965.25
Real Earnings (in 2008 dollars), in the quarter of enrollment	150	$4213.27	5782.47	4687	$1964.77	$3883.58
Real Earnings (in 2008 dollars), 1 quarter after enrollment	150	$4386.86	6212.35	4687	$2907.83	$4161.43
Real Earnings (in 2008 dollars), 2 quarters after enrollment	150	$4487.68	5715.42	4687	$3415.29	$4571.25
Real Earnings (in 2008 dollars), 3 quarters after enrollment	150	$4605.90	5711.01	4687	$3673.50	$4805.16
Real Earnings (in 2008 dollars), 4 quarters after enrollment	150	$4851.56	5610.08	4687	$3827.09	$4924.55
Real Earnings (in 2008 dollars), 5 quarters after enrollment	150	$4816.98	5579.45	4687	$3964.10	$5079.08
Real Earnings (in 2008 dollars), 6 quarters after enrollment	150	$4991.25	5711.89	4687	$4064.16	$5167.76
Number of quarters employed in the two years before enrollment	150	4.09	3.46	4687	3.60	3.26
Unemployment rate, quarter 1 before enrollment	150	5.91%	0.57%	4687	5.80%	0.54%
Unemployment rate, quarter 2 before enrollment	150	6.10%	0.55%	4687	5.82%	0.59%

Table C.6: CLC Female PSM Analysis Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group			Comparison Group		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Black	51	37.25%	48.83%	6270	53.59%	49.88%
White	51	54.90%	50.25%	6270	28.52%	45.15%
Hispanic	51	5.88%	23.76%	6270	15.17%	35.87%
Asian/Pacific Islander	51	1.96%	14.00%	6270	2.73%	16.29%
Age at enrollment	51	40.13	9.68	6270	33.53	11.70
Number of labor force transitions in the two years before enrollment	51	0.86	1.25	6270	0.86	1.14
Real Earnings (in 2008 dollars), 8 quarters before enrollment	51	$5143.62	$6500.11	6270	$2663.86	$4131.88
Real Earnings (in 2008 dollars), 7 quarters before enrollment	51	$4888.57	$6131.71	6270	$2687.16	$4172.89
Real Earnings (in 2008 dollars), 6 quarters before enrollment	51	$5066.89	$6683.14	6270	$2675.19	$4152.00
Real Earnings (in 2008 dollars), 5 quarters before enrollment	51	$5541.25	$6590.00	6270	$2673.79	$4253.63
Real Earnings (in 2008 dollars), 4 quarters before enrollment	51	$5547.33	$7026.11	6270	$2560.75	$4031.62
Real Earnings (in 2008 dollars), 3 quarters before enrollment	51	$5201.04	$6211.40	6270	$2498.55	$4041.02
Real Earnings (in 2008 dollars), 2 quarters before enrollment	51	$5740.70	$6744.95	6270	$2253.24	$3900.75
Real Earnings (in 2008 dollars), 1 quarter before enrollment	51	$5595.43	$6377.60	6270	$1923.91	$3982.01
Real Earnings (in 2008 dollars), in the quarter of enrollment	51	$5799.57	$7061.72	6270	$1501.20	$2698.68
Real Earnings (in 2008 dollars), 1 quarter after enrollment	51	$5150.41	$6247.29	6270	$2335.68	$3092.94
Real Earnings (in 2008 dollars), 2 quarters after enrollment	51	$5374.93	$6433.45	6270	$2837.59	$3472.73
Real Earnings (in 2008 dollars), 3 quarters after enrollment	51	$6158.19	$6900.12	6270	$3102.70	$3652.73
Real Earnings (in 2008 dollars), 4 quarters after enrollment	51	$5707.05	$6494.30	6270	$3266.55	$3799.63
Real Earnings (in 2008 dollars), 5 quarters after enrollment	51	$5617.53	$6468.64	6270	$3399.20	$3972.69
Real Earnings (in 2008 dollars), 6 quarters after enrollment	51	$6039.88	$6427.33	6270	$3448.44	$4016.17
Number of quarters employed in the two years before enrollment	51	4.86	3.23	6270	3.78	3.25
Unemployment rate, quarter 1 before enrollment	51	5.72%	0.54%	6270	5.78%	0.55%
Unemployment rate, quarter 2 before enrollment	51	5.96%	0.55%	6270	5.80%	0.59%

Table C.7: STC Descriptive Statistics for Unmatched Treatment and Comparison Samples

	Treatment Group			Comparison Group		
	Observations	Mean / Percent	S.D.	Observations	Mean / Percent	S.D.
Number of labor force transitions in the two years before enrollment	130	0.31	0.70	13813	0.82	1.13
Real Earnings (in 2008 dollars), 8 quarters before enrollment	130	$6272.24	$6360.63	13813	$1521.24	$3083.07
Real Earnings (in 2008 dollars), 7 quarters before enrollment	130	$6360.63	$4839.27	13813	$1598.26	$3207.83
Real Earnings (in 2008 dollars), 6 quarters before enrollment	130	$6317.51	$4852.23	13813	$1553.06	$3027.56
Real Earnings (in 2008 dollars), 5 quarters before enrollment	130	$6440.14	$4679.34	13813	$1524.07	$2915.45
Real Earnings (in 2008 dollars), 4 quarters before enrollment	130	$7022.11	$5004.38	13813	$1462.46	$2784.23
Real Earnings (in 2008 dollars), 3 quarters before enrollment	130	$7353.25	$5149.47	13813	$1500.39	$2813.11
Real Earnings (in 2008 dollars), 2 quarters before enrollment	130	$7282.97	$5126.34	13813	$1413.46	$2720.09
Real Earnings (in 2008 dollars), 1 quarter before enrollment	130	$7418.95	$4818.44	13813	$1282.31	$2696.81
Real Earnings (in 2008 dollars), in the quarter of enrollment	130	$7398.90	$4670.60	13813	$924.70	$2055.24
Real Earnings (in 2008 dollars), 1 quarter after enrollment	130	$7555.39	$4579.98	13813	$1252.74	$2333.28
Real Earnings (in 2008 dollars), 2 quarters after enrollment	130	$7315.39	$4453.77	13813	$1467.53	$2702.45
Employment rate, 8 quarters before enrollment	130	83.84%	36.94%	13813	34.09%	47.40%
Employment rate, 7 quarters before enrollment	130	83.07%	37.64%	13813	34.85%	47.65%
Employment rate, 6 quarters before enrollment	130	80.76%	39.56%	13813	35.87%	47.96%
Employment rate, 5 quarters before enrollment	130	85.38%	35.46%	13813	36.53%	48.15%
Employment rate, 4 quarters before enrollment	130	84.61%	36.21%	13813	37.71%	48.46%
Employment rate, 3 quarters before enrollment	130	85.38%	35.46%	13813	38.37%	48.63%
Employment rate, 2 quarters before enrollment	130	86.15%	34.67%	13813	38.29%	48.61%
Employment rate, 1 quarters before enrollment	130	87.69%	32.97%	13813	37.55%	48.42%
Employment rate, in the quarter of enrollment	130	86.92%	33.84%	13813	39.34%	48.85%
Employment rate, 1 quarter after enrollment	130	87.69%	32.97%	13813	44.35%	49.68%
Employment rate, 2 quarters after enrollment	130	86.92%	33.84%	13813	43.97%	49.63%
Number of quarters employed in the two years before enrollment	130	6.76	2.51	13813	2.93	3.131
Unemployment rate, quarter 1 before enrollment	130	8.91%	1.10%	13813	9.60%	1.04%
Unemployment rate, quarter 2 before enrollment	130	9.86%	1.13%	13813	9.56%	1.01%

Figure C.1: CJAP Earnings, by Matching Strategy and Quarter

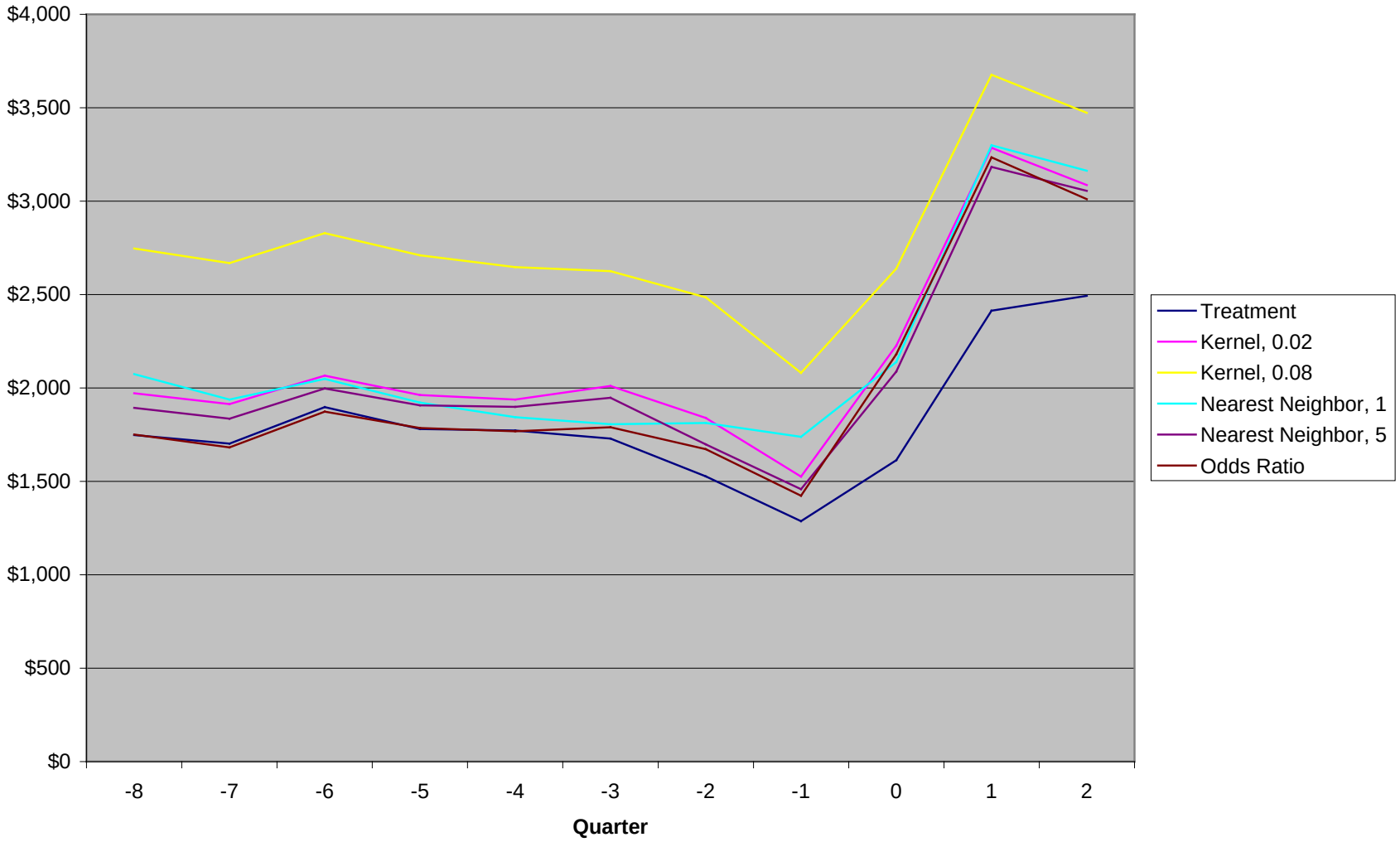

Figure C.2: CWIT Earnings, by Matching Strategy and Quarter

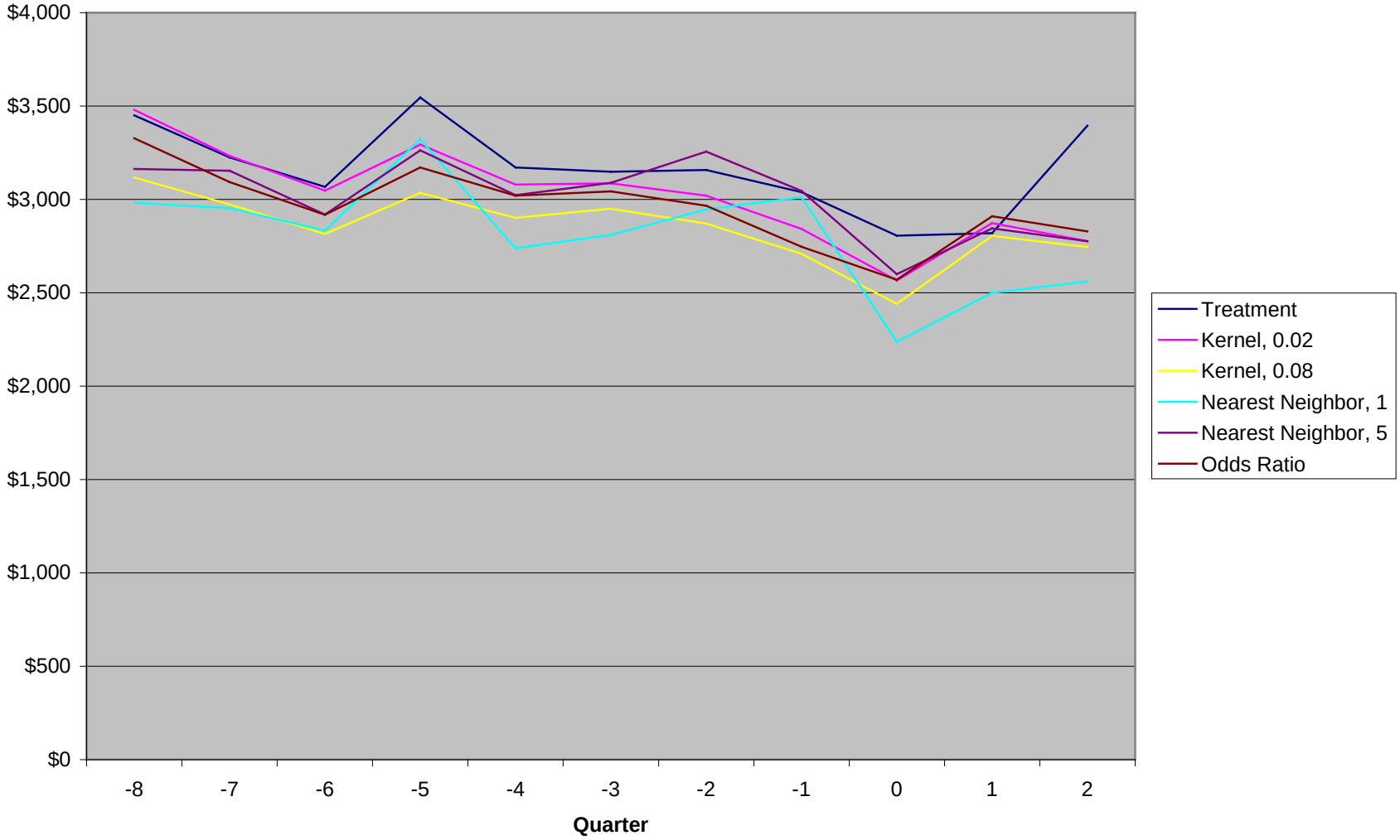

Figure C.3: CGCC Earnings Profiles, by Matching Strategy and Quarter

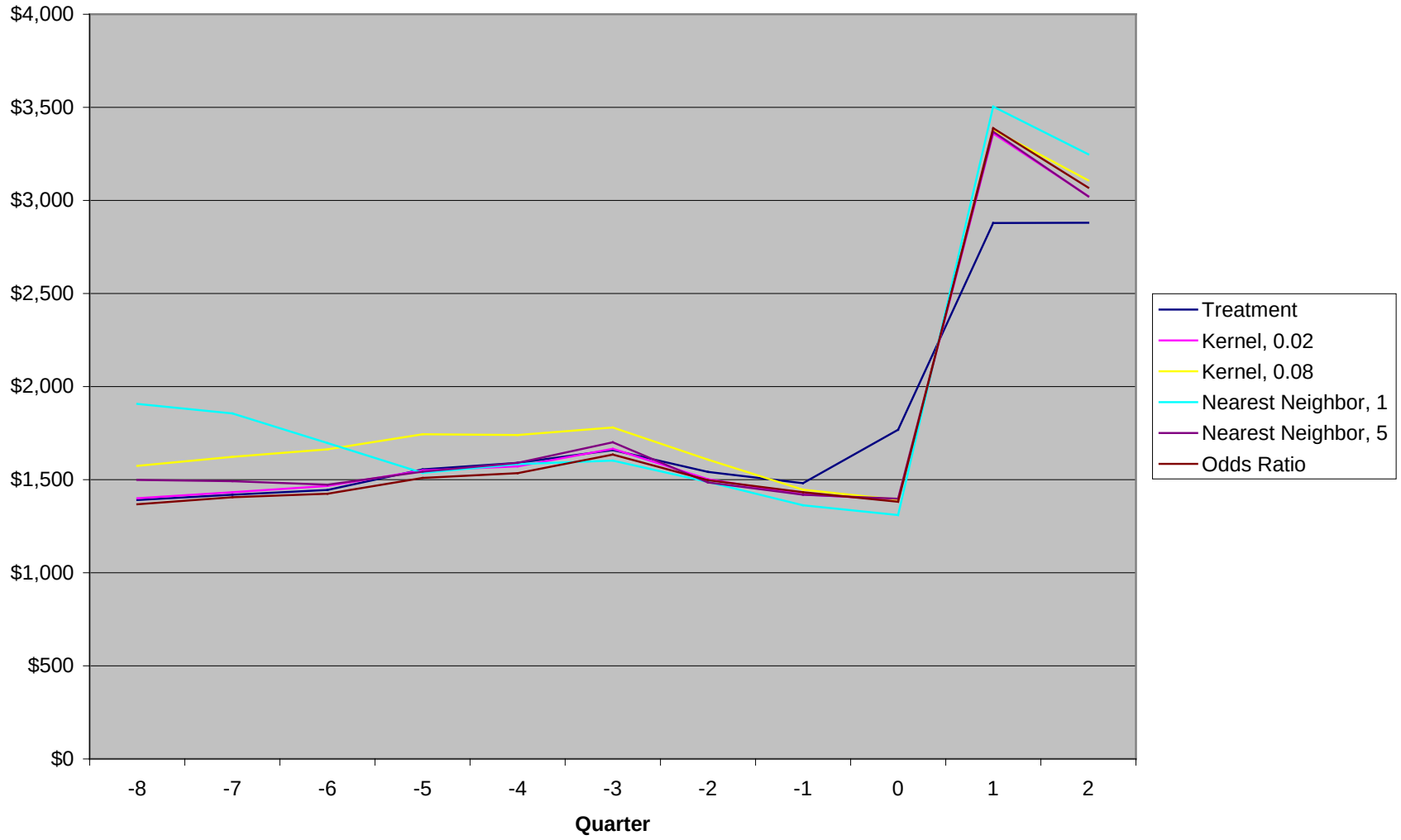

Figure C.4: CLC Male Participant Earnings, by Matching Strategy and Quarter

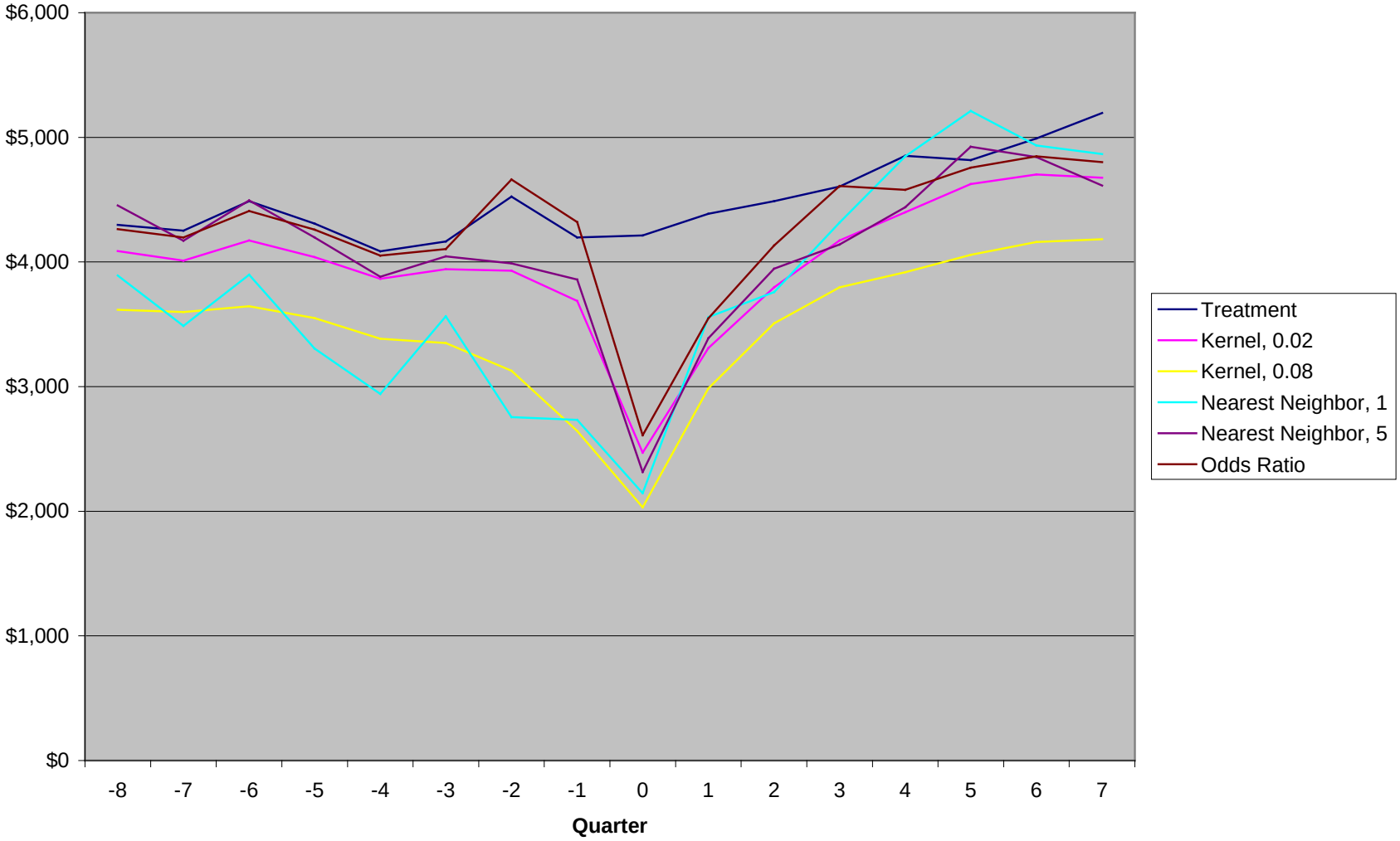

Figure C.5: CLC Female Participant Earnings, by Matching Strategy and Quarter

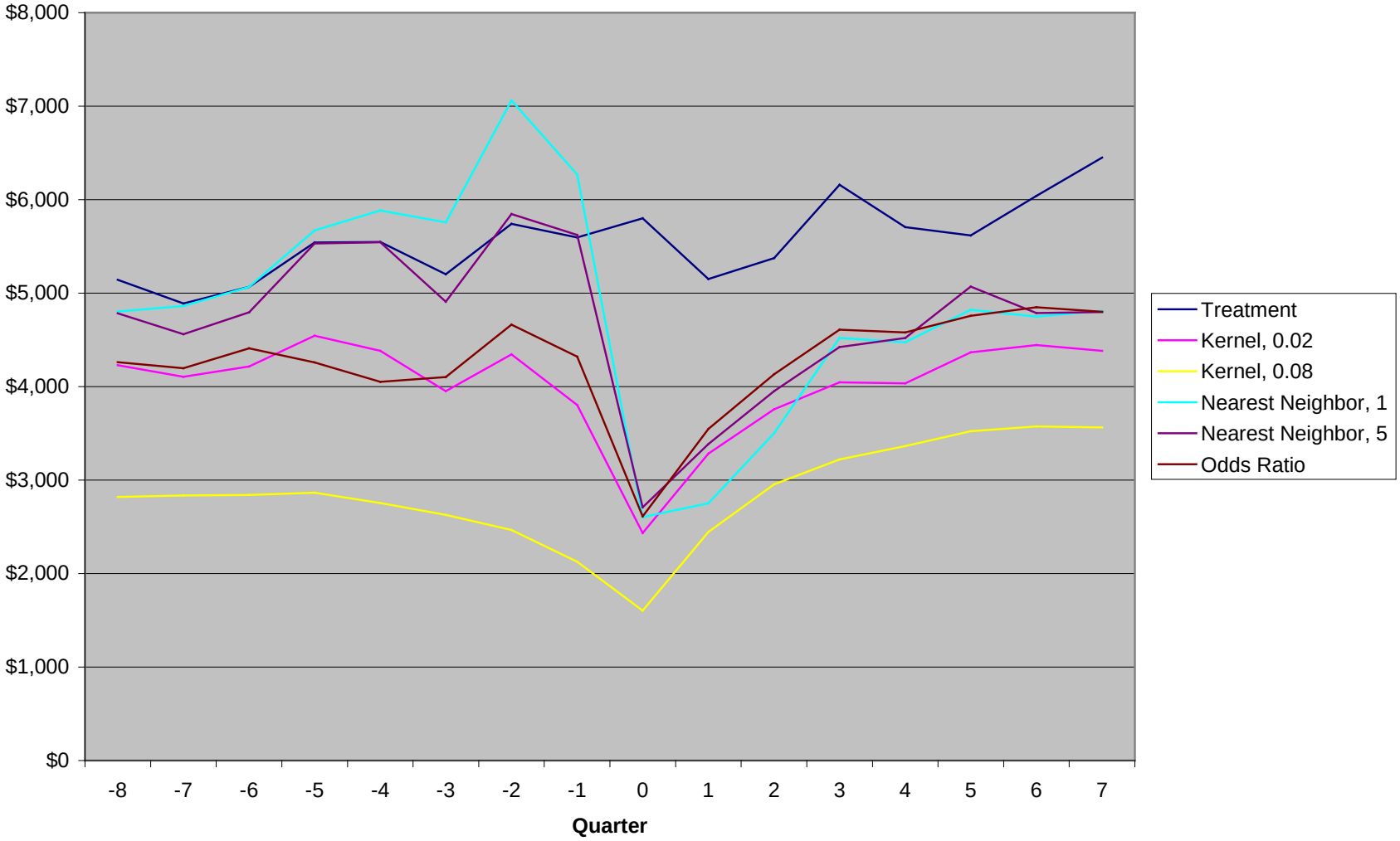

Figure C.6: STC Earnings, by Matching Strategy and Quarter

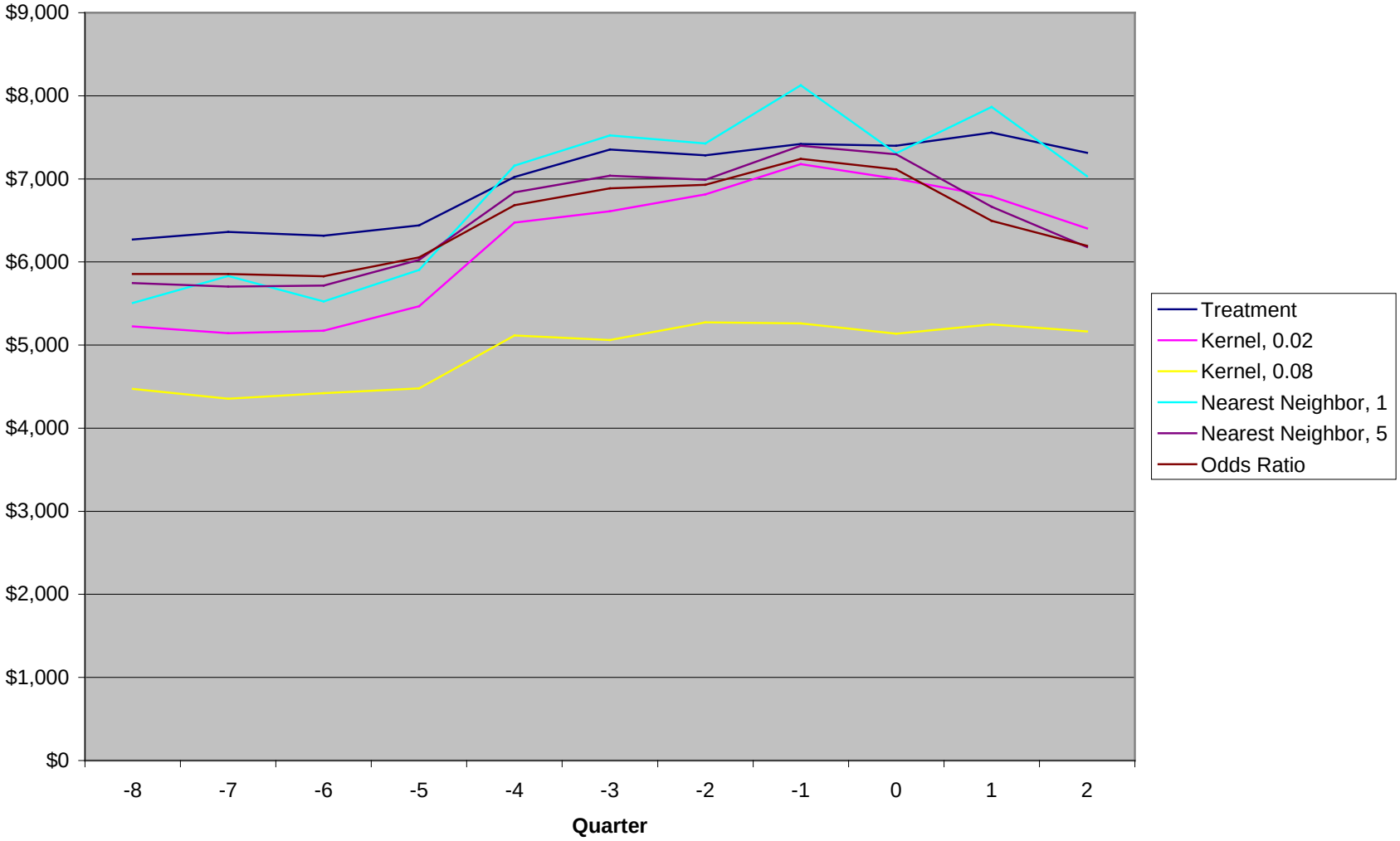

Table C.8: Logit Model Predicting Treatment Status Of CJAP Sample to Produce Propensity Scores

	Odds Ratio	p-value
Black (White reference)	3.9258***	0.0000
Other (White reference)	1.7500	0.4110
Age at enrollment	0.9734	0.5010
Age at enrollment^2	1.0001	0.7940
Number of labor force status transitions in the two years before enrollment	1.0678	0.3700
Earnings, 1st quarter pre-enrollment	0.9925	0.2560
Earnings, 1st quarter pre-enrollment^2	1.0000	0.1820
Earnings, 2nd quarter pre-enrollment	1.0084	0.4610
Earnings, 2nd quarter pre-enrollment^2	0.9998	0.1480
Earnings, 3rd quarter pre-enrollment	0.9968	0.7170
Earnings, 3rd quarter pre-enrollment^2	1.0000	0.4190
Earnings, 4th quarter pre-enrollment	1.0197*	0.0950
Earnings, 4th quarter pre-enrollment^2	0.9998	0.1030
Earnings, 5th quarter pre-enrollment	0.9908	0.3670
Earnings, 5th quarter pre-enrollment^2	1.0000	0.8550
Earnings, 6th quarter pre-enrollment	0.9998	0.9860
Earnings, 6th quarter pre-enrollment^2	1.0000	0.3560
Earnings, 7th quarter pre-enrollment	1.0001	0.9880
Earnings, 7th quarter pre-enrollment^2	0.9999	0.4820
Earnings, 8th quarter pre-enrollment	0.9886	0.1710
Earnings, 8th quarter pre-enrollment^2	1.0000	0.1890
Number of quarters employed in the two years before enrollment	0.9825	0.7660
Unemployment rate, quarter 1 before enrollment	0.3498***	0.0000
Unemployment rate, quarter 2 before enrollment	0.1243***	0.0000
N = 2374		
Pseudo R^2 = 26.74%		
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level		

Table C.9: CJAP Difference in Means, Two Quarters Postprogram Earnings for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-1464.75**	714.37	-2.0504	Yes	No (7)	Yes	-469.42	445.56	-1.0535
Kernel, 0.08 bandwidth	-2242.57***	601.72	-3.7269	No (17)	No (23)	No (8)	-446.06	454.25	-0.9820
Nearest Neighbor, 1	-1491.47**	655.08	-2.2768	Yes	No (9)	Yes	-657.27	622.82	-1.0553
Nearest Neighbor, 5	-1267.51**	562.37	-2.2539	Yes	No (1)	Yes	-535.00	486.55	-1.0996
Odds Ratio Weighting	-2425.03***	331.17	-7.3225	No (8)	No (1)	Yes	-690.39	509.84	-1.3541
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.10: CJAP Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-1114.35	782.37	-1.4243	Yes	No (7)	Yes	-565.87	466.06	-1.2142
Kernel, 0.08 bandwidth	-382.62	649.85	-0.5888	No (13)	No (18)	No (7)	-513.78	470.12	-1.0929
Nearest Neighbor, 1	-1262.64	791.76	-1.5947	Yes	No (9)	Yes	-740.92	628.60	-1.1787
Nearest Neighbor, 5	-1104.71*	604.18	-1.8284	Yes	No (1)	Yes	-597.21	463.95	-1.2872
Odds Ratio Weighting	-1642.93***	405.56	-4.0509	No (8)	No (1)	Yes	-656.12	561.26	-1.1690
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.11: CJAP Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-1027.93	768.49	-1.3376	Yes	No (7)	Yes	-435.29	492.53	-0.8838
Kernel, 0.08 bandwidth	-276.72	637.95	-0.4338	No (13)	No (19)	No (6)	-345.93	507.51	-0.6816
Nearest Neighbor, 1	-999.19	778.94	-1.2828	Yes	No (8)	Yes	-293.28	675.37	-0.4343
Nearest Neighbor, 5	-1057.79*	597.85	-1.7693	Yes	No (1)	Yes	-395.54	531.05	-0.7448
Odds Ratio Weighting	-1562.26***	373.07	-4.1875	No (8)	No (1)	Yes	-440.95	578.32	-0.7625
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.12: CJAP Difference in Means, Two Quarters Postprogram Employment for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.0402	0.0372	-1.0806	-0.2319	0.2291	-1.0122
Kernel, 0.08 bandwidth	-0.0464	0.0372	-1.2473	-0.2713	0.2281	-1.1894
Nearest Neighbor, 1	-0.0901**	0.0454	-1.9846	-0.6057*	0.3268	-1.8534
Nearest Neighbor, 5	-0.0440	0.0397	-1.1083	-0.2489	0.2374	-1.0484
Odds Ratio Weighting	0.0208	0.0513	0.4055	0.1256	0.3238	0.3879
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.13: CJAP Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.0402	0.0372	-1.0806	-0.2319	0.2291	-1.0122
Kernel, 0.08 bandwidth	-0.0464	0.0372	-1.2473	-0.2713	0.2281	-1.1894
Nearest Neighbor, 1	-0.0901**	0.0454	-1.9846	-0.6057*	0.3268	-1.8534
Nearest Neighbor, 5	-0.0440	0.0397	-1.1083	-0.2489	0.2374	-1.0484
Odds Ratio Weighting	0.0208	0.0513	0.4055	0.1256	0.3238	0.3879
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.14: CJAP Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.0648	0.0477	-1.3585	-0.3248	0.2238	-1.4513
Kernel, 0.08 bandwidth	-0.0611	0.0481	-1.2703	-0.3482	0.2293	-1.5185
Nearest Neighbor, 1	-0.1286**	0.0592	-2.1723	0.0469	0.3045	0.1540
Nearest Neighbor, 5	-0.0703	0.0503	-1.3976	-0.3381	0.2296	-1.4726
Odds Ratio Weighting	0.0159	0.0611	0.2602	-0.3932	0.3038	-1.2943
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.15: Logit Model Predicting Treatment Status of CWIT Sample to Produce Propensity Scores

	Odds Ratio	p-value
Black (White reference)	0.2161***	0.0000
Hispanic (White Reference)	0.3724***	0.0000
Other (White reference)	0.1671***	0.0000
Age at enrollment	1.1303**	0.0180
Age at enrollment^2	0.9974***	0.0010
Number of labor force status transitions in the two years before enrollment	0.9048	0.1830
Earnings, 1st quarter pre-enrollment	0.9939	0.3480
Earnings, 1st quarter pre-enrollment^2	1.0000	0.7460
Earnings, 2nd quarter pre-enrollment	0.9898	0.2100
Earnings, 2nd quarter pre-enrollment^2	1.0000*	0.0710
Earnings, 3rd quarter pre-enrollment	0.9917	0.4000
Earnings, 3rd quarter pre-enrollment^2	1.0000	0.3890
Earnings, 4th quarter pre-enrollment	1.0069	0.3770
Earnings, 4th quarter pre-enrollment^2	0.9999*	0.0980
Earnings, 5th quarter pre-enrollment	0.9913	0.3660
Earnings, 5th quarter pre-enrollment^2	1.0001	0.1080
Earnings, 6th quarter pre-enrollment	1.0050	0.6560
Earnings, 6th quarter pre-enrollment^2	0.9998	0.1150
Earnings, 7th quarter pre-enrollment	0.9972	0.7840
Earnings, 7th quarter pre-enrollment^2	0.9999	0.9880
Earnings, 8th quarter pre-enrollment	1.0035	0.6230
Earnings, 8th quarter pre-enrollment^2	1.0000	0.3390
Number of quarters employed in the two years before enrollment	1.1992***	0.0010
Unemployment rate, quarter 1 before enrollment	0.3185***	0.0000
Unemployment rate, quarter 2 before enrollment	2.5070***	0.0000
High School Graduate	0.3321***	0.0030
N = 941		
Pseudo R^2 = 14.48%		
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level		

Table C.16: CWIT Difference in Means, Two Quarters Postprogram Earnings for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	564.41	572.92	0.9851	Yes	No (7)	Yes	392.73	349.85	1.1226
Kernel, 0.08 bandwidth	663.32	535.33	1.2391	No (1)	No (16)	Yes	237.95	348.05	0.6837
Nearest Neighbor, 1	1017.58	698.00	1.4578	Yes	No (10)	Yes	655.55	395.20	1.6588
Nearest Neighbor, 5	457.27	580.29	0.7880	Yes	No (4)	Yes	523.96	378.65	1.3838
Odds Ratio Weighting	4499.97***	306.06	14.7025	No (22)	No (6)	Yes	309.48	511.29	0.6053
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.17: CWIT Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	293.00	531.87	0.5509	Yes	No (5)	Yes	162.36	407.77	0.3982
Kernel, 0.08 bandwidth	-98.00	498.35	-0.1967	Yes	No (12)	Yes	-1.54	402.74	-0.0038
Nearest Neighbor, 1	101.49	662.64	0.1532	Yes	No (8)	Yes	989.93**	467.15	2.1191
Nearest Neighbor, 5	480.78	506.55	0.9491	Yes	No (4)	Yes	425.02	408.84	1.0396
Odds Ratio Weighting	-32241.63***	503.28	-64.0627	No (18)	No (6)	Yes	-2957.09***	906.52	-3.2620
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.18: CWIT Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	602.64	549.13	1.0974	Yes	No (7)	Yes	632.03	494.06	1.2792
Kernel, 0.08 bandwidth	79.72	511.32	0.1559	Yes	No (12)	Yes	291.03	443.76	0.6558
Nearest Neighbor, 1	530.82	717.85	0.7395	Yes	No (8)	Yes	377.18	518.21	0.7279
Nearest Neighbor, 5	351.39	538.91	0.6520	Yes	No (3)	Yes	488.87	462.10	1.0579
Odds Ratio Weighting	-9028.87***	319.06	-28.2976	No (18)	No (5)	Yes	7.51	691.25	0.0109
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.19: CWIT Difference in Means, Two Quarters Postprogram Employment for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	0.0947***	0.0290	3.2655	0.6117***	0.2025	3.0207
Kernel, 0.08 bandwidth	0.0863***	0.0287	3.0070	0.5704***	0.2017	2.8280
Nearest Neighbor, 1	0.1272***	0.0439	2.8975	0.7906***	0.2818	2.8055
Nearest Neighbor, 5	0.1039***	0.0312	3.3301	0.6655***	0.2194	3.0333
Odds Ratio Weighting	0.1023***	0.0318	3.2170	0.7362***	0.2526	2.9145
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.20: CWIT Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	0.1066***	0.0340	3.1353	0.1625	0.1915	0.8486
Kernel, 0.08 bandwidth	0.0983***	0.0341	2.8827	0.1856	0.1891	0.9815
Nearest Neighbor, 1	0.1503***	0.0494	3.0425	-0.0685	0.2722	-0.2517
Nearest Neighbor, 5	0.1262***	0.0365	3.4575	0.2810	0.2072	1.3562
Odds Ratio Weighting	0.1211***	0.0369	3.2818	0.0773	0.2375	0.3255
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.21: CWIT Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	0.1306***	0.0366	3.5683	0.3050	0.1904	1.6019
Kernel, 0.08 bandwidth	0.1242***	0.0360	3.4500	0.3484*	0.1881	1.8522
Nearest Neighbor, 1	0.1763***	0.0528	3.3390	0.0843	0.2618	0.3220
Nearest Neighbor, 5	0.1354***	0.0389	3.4807	0.4595**	0.2042	2.2502
Odds Ratio Weighting	0.1257***	0.0435	2.8897	0.1795	0.2442	0.7351
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.22: Logit Model Predicting Treatment Status Of CGCC Sample to Produce Propensity Scores

	Odds Ratio	p-value
Black (Other reference)	0.3963	0.4490
White (Other Reference)	0.8574	0.6550
Hispanic (Other reference)	0.3671**	0.0500
Age at enrollment	0.9524	0.3430
Age at enrollment^2	1.0001	0.8130
Number of labor force status transitions in the two years before enrollment	0.8752	0.1610
Earnings, 1st quarter pre-enrollment	1.0003**	0.0170
Earnings, 1st quarter pre-enrollment^2	1.0000**	0.0310
Earnings, 2nd quarter pre-enrollment	0.9998	0.4030
Earnings, 2nd quarter pre-enrollment^2	1.0000	0.8930
Earnings, 3rd quarter pre-enrollment	0.9999	0.4510
Earnings, 3rd quarter pre-enrollment^2	1.0000	0.1470
Earnings, 4th quarter pre-enrollment	1.0000	0.9400
Earnings, 4th quarter pre-enrollment^2	1.0000	0.8720
Earnings, 5th quarter pre-enrollment	1.0000	0.5810
Earnings, 5th quarter pre-enrollment^2	1.0000	0.2410
Earnings, 6th quarter pre-enrollment	0.9999	0.6900
Earnings, 6th quarter pre-enrollment^2	1.0000	0.8330
Earnings, 7th quarter pre-enrollment	1.0000	0.5960
Earnings, 7th quarter pre-enrollment^2	1.0000	0.4000
Earnings, 8th quarter pre-enrollment	0.9998	0.4920
Earnings, 8th quarter pre-enrollment^2	1.0000	0.5110
Number of quarters employed in the two years before enrollment	1.0647	0.3170
Unemployment rate, quarter 1 before enrollment	0.8502***	0.0000
Unemployment rate, quarter 2 before enrollment	1.4507***	0.0000
High School Graduate	9.4202***	0.0000
N = 951		
Pseudo R^2 = 10.70%		
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level		

Table C.23: CGCC Difference in Means, Two Quarters Postprogram Earnings for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-623.28	431.42	-1.4447	Yes	Yes	Yes	-646.25*	368.71	-1.7527
Kernel, 0.08 bandwidth	-729.64*	414.54	-1.7601	Yes	No (15)	Yes	-662.96*	369.00	-1.7966
Nearest Neighbor, 1	-992.34*	593.85	-1.6710	No (3)	No (11)	No (1)	-999.04*	557.32	-1.7926
Nearest Neighbor, 5	-632.70	453.68	-1.3946	Yes	No (1)	Yes	-672.17*	406.51	-1.6535
Odds Ratio Weighting	-696.73	640.76	-1.0873	Yes	Yes	Yes	-752.52**	365.57	-2.0584
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.24: CGCC Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-607.18	515.20	-1.1785	Yes	Yes	Yes	-639.89	389.96	-1.6409
Kernel, 0.08 bandwidth	-323.85	483.32	-0.6700	Yes	No (11)	Yes	-584.47	389.51	-1.5005
Nearest Neighbor, 1	-759.67	733.26	-1.0360	No (1)	No (9)	No (3)	-1164.88*	595.09	-1.9575
Nearest Neighbor, 5	-617.44	529.51	-1.1660	Yes	No (1)	Yes	-674.67	429.12	-1.5722
Odds Ratio Weighting	-763.40*	415.01	-1.8394	Yes	Yes	Yes	-765.42**	387.76	-1.9739
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.25: CGCC Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-599.65	524.54	-1.1432	Yes	Yes	Yes	-671.15*	402.44	-1.6677
Kernel, 0.08 bandwidth	-342.54	495.80	-0.6909	Yes	No (11)	Yes	-613.94	404.61	-1.5174
Nearest Neighbor, 1	-39.42	801.67	-0.0492	Yes	No (8)	No (1)	-538.88	598.12	-0.9010
Nearest Neighbor, 5	-450.62	545.73	-0.8257	Yes	No (1)	Yes	-556.68	453.30	-1.2281
Odds Ratio Weighting	-733.95*	438.53	-1.6736	Yes	Yes	Yes	-762.65*	400.17	-1.9058
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.26: CGCC Difference in Means, Two Quarters Postprogram Employment for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.1142***	0.0315	-3.6254	-1.0266***	0.3282	-3.1280
Kernel, 0.08 bandwidth	-0.1077***	0.0316	-3.4082	-0.9225***	0.2406	-3.8342
Nearest Neighbor, 1	-0.1251***	0.0400	-3.1275	-1.1879***	0.3638	-3.2653
Nearest Neighbor, 5	-0.1200***	0.0333	-3.6036	-1.1087***	0.2923	-3.7930
Odds Ratio Weighting	-0.1144***	0.0315	-3.6317	-1.0326***	0.2535	-4.0734
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.27: CGCC Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.1012***	0.0384	-2.6354	-0.8677***	0.2481	-3.4974
Kernel, 0.08 bandwidth	-0.0928***	0.0380	-2.4421	-0.8267***	0.2363	-3.4985
Nearest Neighbor, 1	-0.0993**	0.0498	-1.9940	-0.9491***	0.3476	-2.7304
Nearest Neighbor, 5	-0.1002***	0.0409	-2.4499	-0.8901***	0.2720	-3.2724
Odds Ratio Weighting	-0.0979***	0.0382	-2.5628	-0.8595***	0.2488	-3.4546
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.28: CGCC Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.1126***	0.0379	-2.9710	-1.0402***	0.2464	-4.2216
Kernel, 0.08 bandwidth	-0.1080***	0.0374	-2.8877	-1.0341***	0.2353	-4.3948
Nearest Neighbor, 1	-0.1427***	0.0496	-2.8770	-1.3564***	0.3526	-3.8469
Nearest Neighbor, 5	-0.1224***	0.0402	-3.0448	-1.0663***	0.2693	-3.9595
Odds Ratio Weighting	-0.1169***	0.0375	-3.1173	-1.0682***	0.2481	-4.3055
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.29: Logit Model Predicting Treatment Status of CLC Males to Produce Propensity Scores

	Odds Ratio	p-value
Black (Hispanic reference)	0.2959***	0.000
White (Hispanic reference)	1.7769**	0.025
Asian/Pacific Islander (Hispanic reference)	2.9149***	0.006
Age at enrollment	1.0894*	0.060
Age at enrollment^2	0.9991	0.111
Number of labor force status transitions in the two years before enrollment	0.8154**	0.042
Earnings, 1st quarter pre-enrollment	1.0226***	0.000
Earnings, 1st quarter pre-enrollment^2	0.9999***	0.003
Earnings, 2nd quarter pre-enrollment	0.9975	0.655
Earnings, 2nd quarter pre-enrollment^2	1.0000	0.118
Earnings, 3rd quarter pre-enrollment	0.9911	0.156
Earnings, 3rd quarter pre-enrollment^2	1.0000	0.266
Earnings, 4th quarter pre-enrollment	0.9996	0.956
Earnings, 4th quarter pre-enrollment^2	1.0000	0.627
Earnings, 5th quarter pre-enrollment	0.9978	0.756
Earnings, 5th quarter pre-enrollment^2	1.0000	0.826
Earnings, 6th quarter pre-enrollment	1.0029	0.670
Earnings, 6th quarter pre-enrollment^2	1.0000	0.873
Earnings, 7th quarter pre-enrollment	0.9985	0.840
Earnings, 7th quarter pre-enrollment^2	1.0000	0.726
Earnings, 8th quarter pre-enrollment	0.9958	0.414
Earnings, 8th quarter pre-enrollment^2	1.0000	0.371
Number of quarters employed in the two years before enrollment	0.9710	0.611
Unemployment rate, quarter 1 before enrollment	0.4651***	0.002
Unemployment rate, quarter 2 before enrollment	3.6234***	0.000
N = 4,837		
Pseudo R^2 = 12.34%		
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level		

Table C.30: CLC Male Difference in Means, Seven Quarters Postprogram Earnings for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	3653.97	3186.44	1.15	Yes	No (11)	Yes	1968.16	1556.97	1.26
Kernel, 0.08 bandwidth	6729.85**	3155.71	2.13	No (7)	No (25)	No (7)	1504.28	1592.46	0.94
Nearest Neighbor, 1	1213.16	4220.03	0.29	No (4)	No (17)	No (2)	-5493.05*	3221.95	-1.70
Nearest Neighbor, 5	2411.60	3344.91	0.72	Yes	No (5)	Yes	2141.21	2008.93	1.07
Odds Ratio Weighting	2060.60	3148.56	0.65	Yes	No (4)	Yes	2336.88	1549.32	1.51
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.31: CLC Male Difference in Differences, Quarters Seven and Eight Postprogram Earnings (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	225.97	654.05	0.35	Yes	No (11)	Yes	386.22	585.08	0.66
Kernel, 0.08 bandwidth	244.19	634.44	0.38	No (7)	No (25)	No (7)	427.89	610.20	0.70
Nearest Neighbor, 1	-955.24	1301.46	-0.73	No (4)	No (17)	No (2)	-1390.33	1175.93	-1.18
Nearest Neighbor, 5	878.28	772.68	1.14	Yes	No (5)	Yes	813.17**	760.56	1.97
Odds Ratio Weighting	409.57	635.17	0.64	Yes	No (4)	Yes	529.06	582.12	0.91
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.32: CLC Male Difference in Differences, Quarters Seven and Eight Postprogram Earnings (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	357.29	709.06	0.50	Yes	No (11)	Yes	356.24	681.19	0.52
Kernel, 0.08 bandwidth	511.15	690.61	0.74	No (7)	No (25)	No (7)	329.22	775.74	0.42
Nearest Neighbor, 1	-610.87	1416.69	-0.43	No (4)	No (17)	No (2)	-1991.38	1222.89	-1.63
Nearest Neighbor, 5	979.55	843.56	1.16	Yes	No (5)	Yes	625.55	823.89	0.76
Odds Ratio Weighting	448.39	691.29	0.65	Yes	No (4)	Yes	588.32	666.91	0.88
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.33: Logit Model Predicting Treatment Status of CLC Females to Produce Propensity Scores

	Odds Ratio	p-value
Black (Hispanic reference)	1.7686	0.374
White (Hispanic reference)	3.1925*	0.061
Asian/Pacific Islander (Hispanic reference)	1.1011	0.936
Age at enrollment	1.3808***	0.002
Age at enrollment^2	0.9962***	0.003
Number of labor force status transitions in the two years before enrollment	1.2813	0.102
Earnings, 1st quarter pre-enrollment	1.0300***	0.002
Earnings, 1st quarter pre-enrollment^2	0.9999**	0.016
Earnings, 2nd quarter pre-enrollment	1.0091	0.395
Earnings, 2nd quarter pre-enrollment^2	1.0000	0.780
Earnings, 3rd quarter pre-enrollment	0.9943	0.626
Earnings, 3rd quarter pre-enrollment^2	1.0000	0.972
Earnings, 4th quarter pre-enrollment	0.9930	0.549
Earnings, 4th quarter pre-enrollment^2	1.0000*	0.099
Earnings, 5th quarter pre-enrollment	1.0123	0.316
Earnings, 5th quarter pre-enrollment^2	1.0000	0.435
Earnings, 6th quarter pre-enrollment	0.9870	0.311
Earnings, 6th quarter pre-enrollment^2	1.0000	0.269
Earnings, 7th quarter pre-enrollment	1.0028	0.849
Earnings, 7th quarter pre-enrollment^2	1.0000	0.524
Earnings, 8th quarter pre-enrollment	0.9977	0.832
Earnings, 8th quarter pre-enrollment^2	1.0000	0.543
Number of quarters employed in the two years before enrollment	0.8808	0.235
Unemployment rate, quarter 1 before enrollment	0.1944***	0.001
Unemployment rate, quarter 2 before enrollment	4.4080***	0.000
N = 6,321		
Pseudo R^2 = 15.62%		
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level		

Table C.34: CLC Female Difference in Means, Seven Quarters Postprogram Earnings for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	12186.76	6287.51	1.94	No (1)	No (24)	No (9)	4706.62	2455.76	1.92
Kernel, 0.08 bandwidth	17857.61	6259.11	2.85	No (19)	No (24)	No (23)	-133.82	2152.44	-0.06
Nearest Neighbor, 1	10866.18	7345.31	1.48	Yes	No (17)	No (7)	2899.89	4910.22	0.59
Nearest Neighbor, 5	9562.89	6598.27	1.45	Yes	No (13)	Yes	7340.95	3221.63	2.28
Odds Ratio Weighting	6611.34	6203.12	1.07	Yes	Yes	Yes	6694.03	2565.34	2.61
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.35: CLC Female Difference in Differences, Quarters Seven and Eight Postprogram Earnings (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	1815.01	1262.91	1.44	No (1)	No (24)	No (9)	1722.71	1009.27	1.71
Kernel, 0.08 bandwidth	451.93	1240.32	0.36	No (19)	No (24)	No (23)	196.57	933.20	0.21
Nearest Neighbor, 1	3060.92	2307.17	1.33	Yes	No (17)	No (7)	1244.89	1830.07	0.68
Nearest Neighbor, 5	2622.68	1534.23	1.71	Yes	No (13)	Yes	2451.78	1186.02	2.07
Odds Ratio Weighting	1780.35	1232.76	1.44	Yes	Yes	Yes	1842.78	1002.30	1.84
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.36: CLC Female Difference in Differences, Quarters Seven and Eight Postprogram Earnings (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	1965.98	1223.64	1.61	No (1)	No (24)	No (9)	1619.04	950.77	1.70
Kernel, 0.08 bandwidth	977.39	1201.05	0.81	No (19)	No (24)	No (23)	167.63	921.21	0.18
Nearest Neighbor, 1	2563.05	2251.88	1.14	Yes	No (17)	No (7)	-259.37	1681.54	-0.15
Nearest Neighbor, 5	2216.74	1472.52	1.51	Yes	No (13)	Yes	1989.61	1126.94	1.77
Odds Ratio Weighting	1773.94	1194.34	1.49	Yes	Yes	Yes	1925.95	931.59	2.07
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.37: CLC RDD for CLC Applicants Above and Below the TABE Test Score Cutoff

Model Specification	Earnings from the 1st to 5th Qtr.	Earnings, 1st Quarter	Earnings, 2nd Quarter	Earnings, 3rd Quarter	Earnings, 4th Quarter	Earnings, 5th Quarter
"Fuzzy" Instrumental Variable RDD (cutoff, 16)	$5,128.53 (0.07)	$1,566.25 (0.10)	-$1,801.40 (-0.09)	$10,099.74 (0.51)	$1,822.87 (0.10)	-$6,558.93 (-0.29)
Local Linear Regression (cutoff, 16)	-$1,549.98 (-0.33)	$19.33 (0.02)	-$539.81 (-0.48)	-$244.23 (-0.23)	-$347.72 (-0.33)	-$437.54 (0.39)
"Fuzzy" Instrumental Variable RDD (cutoff, 14)	-$310,890.30 (-0.49)	-$37,156.39 (-0.45)	-$55,062.89 (-0.47)	-$73,265.62 (-0.49)	-$51,654.57 (-0.49)	-$93,750.85 (-0.51)
Local Linear Regression (cutoff, 14)	-$4,821.68 (-1.15)	-$602.40 (-0.85)	-$1,079.41 (-1.25)	-$1,394.83 (-1.34)	-$515.82 (-0.49)	-$1,229.21 (-1.08)
T statistics are noted in parentheses	*** statistically significant at the .01 level ** statistically significant at the .05 level * statistically significant at the .10 level					

Table C.38: Logit Model Predicting Treatment Status of STC Sample to Produce Propensity Scores

	Odds Ratio	p-value
Number of labor force status transitions in the two years before enrollment	0.7138**	0.0330
Earnings, 1st quarter pre-enrollment	1.0783***	0.0000
Earnings, 1st quarter pre-enrollment^2	0.9997***	0.0000
Earnings, 2nd quarter pre-enrollment	1.0134	0.2100
Earnings, 2nd quarter pre-enrollment^2	0.9999	0.1590
Earnings, 3rd quarter pre-enrollment	1.0063	0.5680
Earnings, 3rd quarter pre-enrollment^2	0.9999	0.9780
Earnings, 4th quarter pre-enrollment	0.9961	0.6850
Earnings, 4th quarter pre-enrollment^2	1.0000	0.2250
Earnings, 5th quarter pre-enrollment	1.0220*	0.0610
Earnings, 5th quarter pre-enrollment^2	0.9999	0.3260
Earnings, 6th quarter pre-enrollment	0.9886	0.3770
Earnings, 6th quarter pre-enrollment^2	0.9999	0.9150
Earnings, 7th quarter pre-enrollment	1.0086	0.4270
Earnings, 7th quarter pre-enrollment^2	0.9999	0.5700
Earnings, 8th quarter pre-enrollment	0.9940	0.6350
Earnings, 8th quarter pre-enrollment^2	0.9999	0.8090
Number of quarters employed in the two years before enrollment	1.0054	0.5520
Unemployment rate, quarter 1 before enrollment	0.9999	0.9190
Unemployment rate, quarter 2 before enrollment	0.9226	0.3170
N = 2374		
Pseudo R^2 = 26.74%		
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level		

Table C.39: STC Difference in Means, Two Quarters Postprogram Earnings for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	1676.18	875.27	1.9150	No (6)	No (19)	No (9)	1554.28	676.73	2.2967
Kernel, 0.08 bandwidth	4459.60	826.13	5.3982	No (18)	No (21)	No (21)	892.38	827.71	1.0781
Nearest Neighbor, 1	-463.37	1797.30	-0.2578	No (1)	No (17)	No (3)	851.75	1007.23	0.8456
Nearest Neighbor, 5	1809.48	1123.20	1.6110	Yes	No (15)	Yes	2086.34	843.71	2.4728
Odds Ratio Weighting	10118.20	594.93	17.0074	No (19)	No (18)	Yes	3837.70	1288.18	2.9792
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.40: STC Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-443.33***	708.52	-0.6257	No (4)	No (15)	No (5)	1490.71***	772.76	1.9291
Kernel, 0.08 bandwidth	601.55***	614.28	0.9793	No (14)	No (17)	No (16)	1090.02***	931.88	1.1697
Nearest Neighbor, 1	-1600.16***	1781.42	-0.8983	Yes	No (13)	No (3)	598.45***	1081.43	0.5534
Nearest Neighbor, 5	982.40***	1020.52	0.9626	Yes	No (11)	Yes	2048.42***	953.44	2.1484
Odds Ratio Weighting	1767.53***	462.97	3.8178	No (15)	No (14)	Yes	4212.74***	1432.10	2.9416
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.41: STC Difference in Differences, Two Quarters Postprogram Earnings (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	T-test Balance Test	Standardized Bias Balance Test (>5)	Standardized Bias Balance Test (>20)	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-588.56***	776.47	-0.7580	No (4)	No (15)	No (6)	1419.22***	873.66	1.6244
Kernel, 0.08 bandwidth	653.92***	682.61	0.9580	No (14)	No (17)	No (16)	798.08***	980.48	0.8140
Nearest Neighbor, 1	-1630.26***	1865.60	-0.8739	No (1)	No (13)	No (3)	1267.40***	1314.81	0.9639
Nearest Neighbor, 5	752.09***	1063.55	0.7072	Yes	No (11)	Yes	1910.05***	987.61	1.9340
Odds Ratio Weighting	1384.59***	496.43	2.7891	No (15)	No (14)	Yes	3794.92***	1476.01	2.5711
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level									

Table C.42: STC Difference in Means, Two Quarters Postprogram Employment for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.0018	0.0229	-0.0786	0.1452	0.3282	0.4424
Kernel, 0.08 bandwidth	0.0131	0.0294	0.4456	0.2395	0.3659	0.6546
Nearest Neighbor, 1	-0.0444	0.0367	-1.2098	-0.8891	1.0266	-0.8661
Nearest Neighbor, 5	0.0043	0.0281	0.1530	0.2172	0.3876	0.5604
Odds Ratio Weighting	0.0904***	0.0361	2.5042	5.7132***	1.3300	4.2956
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.43: STC Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 5 and 6) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.0044	0.0273	-0.1612	-1.0057***	0.3350	-3.0021
Kernel, 0.08 bandwidth	0.0124	0.0340	0.3647	-0.9705***	0.3611	-2.6876
Nearest Neighbor, 1	-0.0383	0.0399	-0.9599	-1.9585***	0.6548	-2.9910
Nearest Neighbor, 5	0.0037	0.0323	0.1146	-1.5307***	0.3785	-4.0441
Odds Ratio Weighting	0.1003***	0.0383	2.6188	-1.9640*	1.1374	-1.7267
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						

Table C.44: STC Difference in Differences, Two Quarters Postprogram Employment (Compared to Pre-Program Quarters 7 and 8) for All WIA Non-trainees

	Treatment Effect	SE	t-statistic	OLS Adjusted Treatment Effect	OLS Adjusted SE	OLS Adjusted t-statistic
Kernel, 0.02 bandwidth	-0.0077	0.0341	-0.2258	-0.4742	0.3522	-1.3464
Kernel, 0.08 bandwidth	0.0033	0.0393	0.0840	-0.4975	0.3651	-1.3626
Nearest Neighbor, 1	-0.0452	0.0458	-0.9869	-0.8155	0.5641	-1.4457
Nearest Neighbor, 5	-0.0006	0.0361	-0.0166	-0.7501**	0.3778	-1.9854
Odds Ratio Weighting	0.0832**	0.0383	2.1723	-2.0173***	0.6665	-3.0266
Note: * = significant at the 10% level, ** = significant at the 5% level, *** = significant at the 1% level						