

WORKFORCE NARRATIVE PROJECT

Does Workforce Development Work?

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OVERVIEW

The Unfortunate Conventional Wisdom

Over the past few decades, policymakers and academics of all leanings, as well as the general public, seem to have accepted as conventional wisdom that workforce development in this country is a failure or, at best, produces only the rare success, however modest. The following statements are indicative:

“We simply lack any evidence that workforce development programs work.”

—Former Assistant Secretary of Labor for Employment and Training Emily Stover DeRocco, quoted in the *Wall Street Journal* (July 2005)

“[W]hile training may be an effective strategy for modestly improving the earnings of a small number of workers, even the best-run training programs cannot provide a stepping-stone out of poverty for any significant numbers of Americans.”

—Gordon Lafer, *The Job Training Charade* (2002, p. 90)

“The best available evidence indicates that public training programs are an inefficient transfer mechanism and an inefficient investment policy for low-skilled adult workers.”

—Nobel Laureate James J. Heckman, “Human Capital Policy” (2003, p. 183)

Workforce development, the conventional wisdom argues, does not work and may never have worked well, wastes taxpayer money, and would be better left to market forces in any event. Various administrations and the U.S. Congress appear to have embraced these notions as well, allowing federal appropriations for the Workforce Investment Act, adult education and related programs funded under Function 504 of the federal budget to decline markedly over the past few decades in real terms. However, the view that such efforts are ineffective is misguided and misinformed and can be rebutted through a careful review of how we measure program performance and what the literature has to say about their effectiveness. Basically, the message can be summed up as follows:

- We have allowed workforce development policy to be defined far too narrowly and have focused primarily on measuring benefits to individuals.
- As traditionally designed and implemented, evaluations of workforce development interventions have applied overly stringent standards for results, set up unfair comparisons pitting low-intensity “labor force attachment” against high-intensity “human capital development” strategies, and, for technical reasons, attributed far too little impact to services generally.
- A wide range of workforce development strategies, public and private, is effective for adults, producing returns on a par with those for many financial investments, including those in equity markets.

- Workforce investments also produce widespread benefits for employers and society as a whole, leading to sustained increases in productivity and economic growth.
- Returns are particularly remarkable when the magnitude and intensity of workforce investments is considered relative to the size and complexity of the barriers they are attempting to address.

Organization of the Paper

I begin by considering a more comprehensive view of workforce development and examining the relative magnitude of investments in its components. Next, I discuss some of the more common faults with measuring the effectiveness of workforce development interventions. I then review the evidence regarding the effectiveness of these interventions and end by summing up what we know.

WORKFORCE DEVELOPMENT, BROADLY DEFINED

If you ask most education and training policy professionals what we mean by workforce development, they will typically refer to the laundry list of programs funded under Function 504 of the federal budget, including those under the Workforce Investment Act (WIA), Employment Services under the Wagner-Peyser Act, adult basic education (ABE), apprenticeship, and career and technical education (CTE) under the Perkins Act, among others. They might also toss in a few more for good measure, such as Food Stamp employment and training programs, work programs for recipients of Temporary Assistance for Needy Families (TANF), and customized training as well. But, together these programs have accounted for only about 2 percent of the federal budget and less than 0.5 percent of Gross Domestic Product in recent decades, shares well below many of our western European competitors (O’Leary et al. 2004, p. 14). In fact, the American Society for Training and Development estimates that employer spending on formal workplace learning—on such activities as on-the-job training (OJT), customized training, work-based learning, and tuition assistance—exceeded \$109 Billion in 2005, about three-quarters of which was spent on *internal* workplace learning (Rivera and Paradise 2007). Large employers in the ASTD survey spent \$1,424 per worker/year, about 2.2 percent of payroll. Focusing exclusively on traditional federal programs is both myopic and misleading if our real concern is with workforce development in the larger sense and its effects on workers.

Osterman (2007) recently outlined a comprehensive framework for the Nation’s publicly funded workforce development system, one that is consistent with others that have been put forth (e.g., King et al. 2000). He posits several key functions of this system, starting with improving skill levels—its “core” function—and job matching to better connect workers and employers in the labor market. He also envisions a series of important demand-side functions, which haven’t always been seen as the purview of public workforce programs and institutions, namely working directly with employers and their associations to help them become more economically competitive and counteract the longstanding bias that provides training and career opportunities disproportionately to

better educated, higher skilled workers. Such an approach comes closer to what Western European countries refer to as “active labor market policy.”

According to Osterman (2007, pp. 125ff.), the system for less skilled adults and dislocated workers features six main “buckets” (with Fiscal Year 2005 budget amounts shown in parentheses):¹

- WIA programs geared primarily toward poor adults (\$1.5 B);
- WIA and Trade Adjustment Assistance programs for dislocated workers (\$1.6 B);
- Adult basic education (ABE) programs funded by federal and state governments (\$570 M in federal grants to states; totaling around \$2.1 B including state reported matching funds);
- Community and technical college programs (\$1.2 B, federal Perkins funding; totaling \$12 B - \$20 B including state and local contributions);² overall community and technical college spending on related programs is likely to be many times greater;
- State-funded programs providing training to incumbent workers (\$270 M);³ and
- The Employment Service or one-stop system supported largely by WIA fulfills the job-matching function (\$0.9 B).

To fully characterize the broader system, however, we must add employer-based education, training and career development efforts to these six public “buckets,” as well as apprenticeship programs, which were funded at USDOL at only \$21 M in FY 2005. Such efforts are funded by employers and often provided in close collaboration with unions, industry associations and postsecondary institutions, especially community and technical colleges. As noted above, U.S. employers are responsible for the lion’s share of workforce development activity and associated spending, though employer-based efforts disproportionately favor better-educated and skilled workers (Lerman et al. 2004).

In recent years, “new” actors known as workforce intermediaries have emerged on the workforce development scene, plying the messy middle ground between the demand and supply sides of the labor market. As described by Giloth (2004) and others, workforce intermediaries now play a number of vital roles in workforce development, including:

- Having a dual-customer focus, addressing the needs of both workers/individuals and employers;
- Coordinating services beyond job-matching to enhance the capacity of workers and employers;
- Integrating funding streams, services, and information;
- Generating ideas and innovative approaches to respond to both customers; and

¹ Amounts derived mainly from the President’s FY 2006 budget request and related documents.

² Federal funds historically have accounted for only about 6-10% of total Perkins spending.

³ State UI-funded training programs, their key features and the literature on their effectiveness are reviewed in King and Smith (2007).

- Serving a broad array of workforce functions rather than acting as a single purpose organization.

Many different organizations serve as workforce intermediaries depending on the roles they play in their local labor markets, including workforce boards, nonprofit organizations, unions, and others. Some of them have been quite successful at reorienting local workforce systems toward “high-road” workforce approaches.

MEASURING EFFECTIVENESS: APPEARANCES CAN BE DECEIVING

Ironically, although private employers account for most workforce development expenditures, the greatest attention by far in terms of assessing their effectiveness has focused on the public side. Moreover, Grubb and Ryan (1999) suggest that these evaluations have stressed efficiency over effectiveness and employed a narrow range of measures and approaches. For a number of reasons, how we’ve measured the effectiveness of workforce development has been problematical.

First, training and workforce development more generally has “suffered” for many years from having the greatest attention and the best data of any federal program. The first serious evaluations of education and training programs were launched in the 1960s, even as the Great Society was getting underway, and contributed substantially to what we now view as the field of program evaluation. In addition, federal law mandated performance standards for job training programs in the 1970s, nearly a decade before the Congress began calling for them to be applied to other programs (see Barnow and Smith 2004). Systematic data collection at all levels necessarily followed. Public education was quite late coming to grips with performance measurement and management issues. Consider what we actually know about the effectiveness of education. A recent report published by the Institute of Education Sciences (2005) indicates that the correlation between state-developed standards of proficiency under the 2001 No Child Left Behind Act do not correlate with the more accepted criterion-based standards used by the National Assessment of Educational Progress (NAEP). And, higher education only began discussing the need for such measures in the last year or two (e.g., the Miller Commission). Workforce development has presented a relatively easy target for critics precisely *because* it has been so transparent and open in its approach to measuring the effectiveness of its efforts.

Second, there has been at least some debate over what we can reasonably expect from investments in workforce education and training, particularly when they are directed toward those with substantial barriers to employment. In his classic 1964 book, *Human Capital*, Nobel laureate Gary Becker reported that the money rate of return to college education for white males was “between 11 and 13 per cent, with higher rates on a high-school education, and still higher rates on an elementary-school education” (1993, p. 7). LaLonde (1997) has indicated that a year of education is associated with a return of around 6%, while others have suggested that training might be expected to yield upwards of 10% return (e.g., Kreuger 2003). That Fortune 500 companies have historically earned an average rate of return a bit less than 15% annually—the 2007 figure was 9.5%—and that the historical real rate of return on stocks is 6.3 percent are benchmarks worth noting (Kreuger 2003, p. 23). Critics often seem to expect workforce programs to produce even

higher rates of return with only modest short-term investments. The expected returns to education and training may equal or even exceed those of other financial or corporate investments.

Third, we have deliberately adopted classical experiments with random assignment to treatment and control status as the "gold standard" for evaluating the effectiveness of workforce development interventions. The 1985 Advisory Committee, a who's who of evaluation researchers led by Ernst Stromsdorfer, provided a clear message about the importance of using an experimental design to evaluate such impacts. The U.S. Department of Labor has issued a request for proposals for evaluating WIA programs via an experimental design that it has labeled its "gold-standard evaluation." However, we have learned that random assignment may not always resolve all of the issues surrounding the measurement of program results and, as implemented, often leads to overly conservative impact estimates for several reasons. For starters, the typical "counterfactual" used in evaluations is now typically not a no-services group, but rather those receiving services available elsewhere in the community. Control group members often receive services very similar to those received by the treatment group, and the recent growth of online training options suggests that measured impacts are likely to be diminished as a result (King 2004). This has been noted (typically in the technical appendices) of the National JTPA Study (Orr et al. 1997), the National Evaluation of Welfare-to-Work Strategies, or NEWWS (Hamilton 2002), and other such reports. Second, the typical evaluation focuses on employment, earnings and related impacts associated with *assignment* to treatment, not *receipt* of services.⁴ Since the shares of assignees actually receiving the intended treatment are quite low, impacts are severely understated. This was true in the National JTPA Study, but most troubling in the well known "test" of the relative efficacy of labor force attachment (LFA, i.e., "work-first") versus human capital development (HCD), in which LFA was generally judged to outperform HCD. One of the reasons for the far larger impacts in Portland was that it was the only HCD site to succeed in enrolling a substantial share of participants in vocational training, not just remedial basic education (King 2004). Over five years, only 28 percent of participants in HCD program sites participated in any vocational training, compared to 40 percent participating in adult education (Hamilton 2002, p. 17).

While experimental evaluations with random assignment to treatment and control status are still generally preferred to quasi-experimental ones, recent empirical work by Greenberg et al. (2006) indicates that, when conducted properly, they yield similar results and, for many groups, provide downward-biased or conservative estimates of program impacts. Quasi-experiments are not afflicted with the per-assignee v. per-participant problem, since all "treatment" members actually received the intended intervention.

Fourth, for various reasons—including both cost constraints and policymakers' demands for timely results—program impacts tend to be measured over timeframes that are generally too short to capture the results of more intensive skill investments, which may take several years to surface. More importantly, in comparing the results of LFA and HCD treatments, short measurement periods seriously bias the comparison in favor of the former. When results have been measured over longer timeframes, some as long as 7-9

⁴ Kreuger (2003, p. 52) refers to the former as the "intent-to-treat" effect.

years for Supported Work, California's Greater Avenues for Independence, and JTPA programs, skills training has generally proved more effective than low-intensity workforce services and, for many groups including low-skilled welfare recipients, its impact showed little if any "decay" (e.g., Hotz et al. 2000; Couch 1992; and King 2004).

Fifth, we have generally given too little attention to the contribution of human capital investments to increased productivity and profitability for employers and economic growth over time. Individual participants are hardly the sole beneficiaries of workforce development investments. Benefits extend to employers, taxpayers and society as a whole, if we are sufficiently expansive in our analysis.

WORKFORCE DEVELOPMENT EFFECTIVENESS: WHAT DOES THE LITERATURE ACTUALLY TELL US?

Considering the limitations discussed above, what does the literature actually tell us about the effectiveness of workforce development efforts? I start by distilling the results from the large and growing literature on publicly funded workforce education and training programs, including recent evidence on the contribution made by workforce intermediaries, and then examining employer impacts and wider economic contributions. To the extent results are available, I present them for participants, employers and other vantage points.

Participant Impacts

As noted earlier, the evaluation literature is most extensive on the issue of participant impacts and runs the gamut from adult education and traditional training for adults and dislocated workers to community college and higher education.

Adult Basic Education. For much too long, adult basic education programs operated in the backwaters of educational programming, serving diverse groups of students with too little up-front diagnosis of their learning problems, woefully inadequate resources, inexperienced teachers, and teaching curricula and tools that left much to be desired. Abt Associates' (1996) national evaluation of adult education indicated that most new adult ed clients were participating for personal reasons, programs had little connection to the workplace or labor market needs, data systems to support the programs were poor, effects of participation on literacy levels were slight, and English-as-a-Second-Language (ESL) was a rapidly emerging focus of the program. However, welfare reform and related efforts led to renewed attention to adult education in the 1990s and spawned national evaluations. States also examined these efforts.

MDRC (Bos et al. 2002) evaluated adult education—encompassing ABE classes, programs preparing students for the General Educational Development (GED) certificate regular high school classes and English-as-a-Second-Language (ESL) classes—in the mid-to-late 1990s as part of the larger NEWS evaluation of LFA v. HDC approaches for welfare recipients, applying a combination of experimental and nonexperimental techniques to examine participation and effects under a mandatory program regime. ABE and GED accounted for most of the programs. Three of its HCD sites (i.e., Atlanta, Grand Rapids and Riverside, CA) were the focus of more intense study. The programs, which tended not to adapt their curricula or teaching methods for welfare recipients, did

boost participation in adult education services significantly, doubling it in these sites, such that one-half of the program group participated in adult education. They also stayed longer. Yet, only 11 percent of adult ed participants received a GED, only one in five received any educational certificate, and effects on reading and math scores were negligible in the three programs.

Did adult education pay off for welfare recipients who participated in it? Bos et al. found that (pp.14ff.):

- GED receipt substantially increased earnings, by about \$771 annually in the third year of follow-up, mainly as a result of getting the GED credential. Other aspects of the adult education program (e.g., program messaging, job search assistance) contributed to the impact.
- Beyond GED receipt, increased reading skills were associated with employment and earnings impacts as well: a one standard deviation increase in reading scores was associated with a \$355 increase in annual earnings in the third year.
- Only 15 percent of adult ed participants actually progressed to any postsecondary education, but those who did experienced substantial increases in earnings, typically after they completed their education and training and late in the post-service period: postsecondary participation was associated with earnings that were \$1,542 (or 47 percent) higher than those of other recipients who only took ABE classes.

Hollenbeck and Huang (2006) assessed adult basic education programs operated by Washington State's community and technical colleges as part of the Upjohn Institute's larger quasi-experimental impact evaluation and benefit-cost analysis of all of Washington State workforce development programs, finding a 5.9 percent longer-term (3-year) impact on employment but no statistically significant impacts on earnings.

Given the rapid increases in the share of non-native born workers in the United States in recent decades and the projections of continued growth for the foreseeable future, there is also considerable interest in the effects of English-language literacy programs. There is very little research on the results of ESL efforts. However, a recent 5-year longitudinal analysis of Washington State data for low-skill adults (25 years and over) in the state's community colleges by Prince and Jenkins (2005) focused on students entering from ESL, as well as GED and other programs as first-time students. They found that the higher students' educational attainment after five years, the greater their average wages (Table 7, p. 14); for example:

- ESL students who attended college and received a 1-year certificate earned roughly twice as much (\$25,673 v. \$13,651) as those who only got a GED.
- ESL students who attended college but did not get a certificate or completed fewer than 10 credits experienced a smaller earnings advantage, on the order of \$4,000-\$5,000.

They conclude that ESL students (and others) should be striving to complete at least a year of college *and* gain an occupational certificate in order to maximize their earnings possibilities.

Training for Adults and Dislocated Workers. Clearly, not all training is alike. Impacts vary widely by field of training, with some high-demand, high-wage occupations (e.g., health care) yielding very large impacts on both employment and earnings. King's (2004) review of the evidence for adults, dislocated workers and others—including LaLonde (1995) and Friedlander et al. (1997)—found that:

- Training as traditionally delivered in U.S. employment and training programs produced statistically significant but modest incremental impacts on both employment and earnings for adult men and women, measured relative to other services available in the community.
- Impacts for women generally have tended to be larger than those for men, result from a broader range of strategies, and lead to large rates of return. Mean per-participant earnings impacts for women in the National JTPA Study ranged from \$533 annually for Classroom Training to nearly \$1,500 annually for OJT/Job Search Assistance (all expressed in 2001 dollars). The mean per-participant earnings impact overall for adult women in JTPA was \$1,236 annually. Estimated per-participant earnings impacts for adult women in the Minority Female Single-Parent Demonstration were also around \$1,000/annually.
- Per-participant earnings impacts for welfare women participating in training programs were larger: \$1,685/annually (National Supported Work), \$2,380/annually (Homemaker-Home Health Aide Demonstration), and \$3,580/annually (National JTPA Study).
- Impacts for adult men in the National JTPA Study were actually similar in size to those for adult women when measured on a per-participant basis: \$1,329 for Classroom Training, \$1,641 for OJT/JSA, and \$1,249 overall.
- Training as delivered in traditional settings was generally not sufficient to lift most families out of poverty.
- Employment-focused approaches tend to produce modest, significant near-term effects on employment and earnings for welfare recipients, with the most effective models being those that offer a mix of LFA and skills acquisition and encourage participants to be selective in their search for jobs offering good wages, benefits, and career advancement opportunities, e.g., the Portland NEWWS site which increased participant earnings by fully 25 percent over five years.
- HCD programs tend to produce significant long-term (7-9 year) impacts on employment and earnings that exceed those of less costly LFA (“work-first”) programs.

In addition, Carneiro and Heckman (2003, p. 182) found that upper-bound estimates of the returns to private sector investments in training for marginal entrants ranged from 16-26 percent. Fewer rigorous evaluations have been conducted of the employment and earnings impacts of programs for dislocated workers, so our knowledge for this group is limited.

Hollenbeck and Huang (2006) reported statistically significant 3-year participant impacts in Washington State community and technical college training programs that were larger than the National JTPA Study impacts, as follows (pp. 69 ff.):

- Job preparatory programs increased employment rates by 6.7 percentage points and average earnings by \$1,008/quarter.⁵
- Worker retraining programs increased employment by 4.6 percentage points and earnings by \$298/quarter.

Their estimated earnings impacts were substantial, on the order of 20 percent. These employment and earnings impacts are consistent with those contained in an unpublished quasi-experimental analysis of the impacts of WIA participation in training in seven states conducted for the U.S. Department of Labor's Employment and Training Administration by Hollenbeck et al. (2005).

Apprenticeship. Hollenbeck and Huang (2006) also assessed apprenticeship as part of their evaluation of Washington State workforce programs. They found that apprentices had an average employment rate 6.8 percentage points higher and average earnings of \$2,281/quarter greater than the matched comparison group over the 3-year, post-exit period, or some \$9,124 annually.

Community College & Higher Education. Education is clearly a very important path for increasing earnings over time. Figure 1 provides a familiar presentation of this relationship, showing that median annual earnings steadily and markedly increase and unemployment steadily decreases as educational attainment rises from high school dropout to high school graduate and on up through professional post-graduate diplomas (from Davis and Jenkins 2005, p. 2). Earnings increments associated with moving from one level to the next are substantial: associates degree holders enjoy a 25 percent earnings advantage over those with just a high school education, while college graduates have a 75 percent advantage over high school graduates.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Prince and Jenkins (2005) found that completing a year of college and gaining an occupational certificate yielded sizeable earnings increases for low-skilled adults in Washington State, regardless of where they began the process (p. 15):

“Compared with those who earned fewer than 10 college credits, students who took at least one year’s worth of college credit courses and earned a credential had an average earnings advantage of \$7,000 for students who started in ESL, \$8,500 for those who started in ABE or GED, and \$2,700 for those entering with a GED or high school diploma, respectively.”

Gill and Leigh (2003) conducted an intensive analysis of the National Longitudinal Study of Youth sample, sorting out academic transfer students from those enrolled in training programs, and found considerable support for earlier studies, namely that enrollment in a community college terminal training was associated with statistically significant earnings increases of 31 percent for white males and 45 percent for black males, increases that were nearly identical to those for demographically similar noncompleters enrolled in 4-year colleges (p. 153).

Ashenfelter et al. (1999), based on a rigorous meta-analysis of 27 studies of the relationship between the labor market returns to postsecondary education in nine countries, including the U.S., concluded:

“There appears little controversy in the general principle underpinning the theory of schooling and earnings — schooling adds considerably to the earnings of individuals. ... Estimated rates of return to schooling appear to be higher in the US than elsewhere, in part because of increased returns in the US in the last two decades. ... The evidence that schooling investments have a significant economic payoff is therefore very strong.”

Even after adjusting for possible “publication bias”—the tendency of refereed journals to disproportionately publish articles that reject the null hypothesis of no effect, they found that estimated returns to a year of postsecondary education in the U.S. were between 6.8 and 8.1 percent. Other estimates of the returns to education by Kane and Rouse (1995, 1999), Leigh and Gill (1997) and others are in this general vicinity though they may argue over the finer points of estimation. Leigh and Gill (1997) also find that returns for returning adults are about the same as those for younger “traditional” students.

Workforce Intermediaries. There has been growing interest and research into the role and impacts of workforce intermediary organizations (e.g., Giloth 2004), especially those with a sectoral focus. While little rigorous evaluation evidence is yet available for sectorally-focused intermediaries and their impacts, the Urban Institute and Aspen Institute have been evaluating such efforts, and a recent study of local workforce investments in Austin provides illustrative early impacts.

The Urban Institute/Aspen Institute evaluation (Pindus et al. 2004) was conducted to determine if sector-based strategies could be adopted and implemented by local workforce boards across the country. They examined sectoral initiatives operated by 38 boards as well as 26 foundation grantees, including outcome indicators, but did not

estimate labor market impacts resulting from these efforts, many of which were focused on serving low-income workers, dislocated workers, and new labor market entrants and were explicitly attempting to meet both employer and worker needs. Pindus et al. reported the following initial outcomes (p. 4):

- Ten of the 12 implementation grantees increased training options in their region;
- Seven of the 12 grantees facilitated career ladders/advancement opportunities and established new pipelines for workers in an industry (most often for youth); and
- All but one grantee undertook projects enrolling students in training.

The evaluation apparently ended before substantial outcomes data became available for analysis.

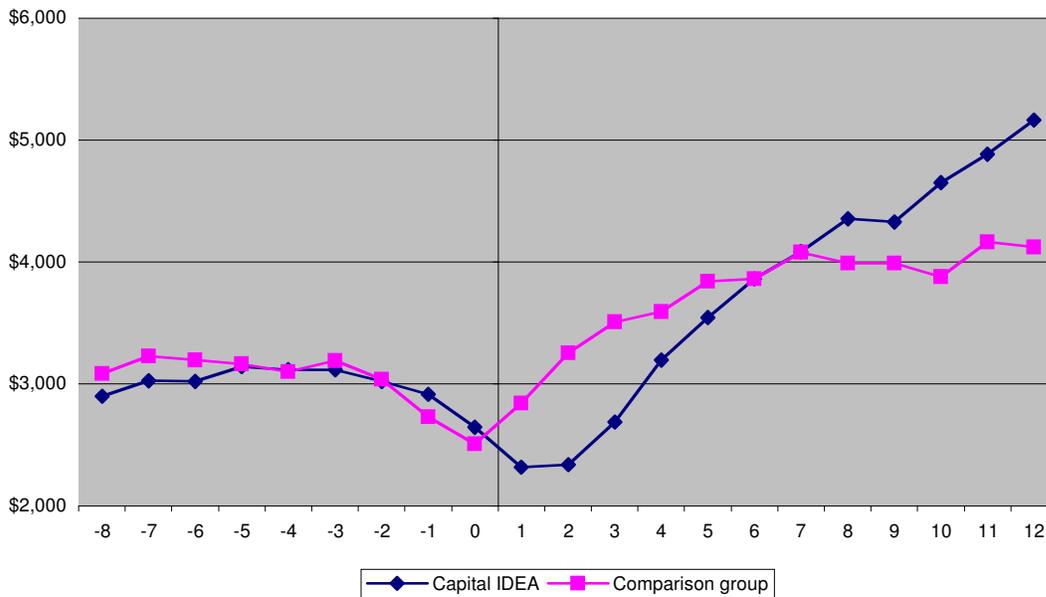
Capital IDEA, an Austin (TX) workforce intermediary organization, offers occupational skills training and extensive support services to disadvantaged residents, focusing on longer-term engagement to improve education and labor market outcomes. Its training, typically provided via Austin Community College, focuses on demand occupations, typically with starting wages at \$14 or more per hour, in healthcare, information technologies, accounting, wireless technologies and utilities, and education. Smith, King and Schroeder (2007) recently measured the labor market impacts of Capital IDEA programs, using a quasi-experimental design. Comparison group members drawn from local ES and WIA “core services” rolls were closely matched on an array of variables—e.g., age, race/ethnicity, gender, prior employment and earnings patterns—through a technique known as weighted multivariate matching. Smith et al. thus measured the *added value* of intensive occupational skills investments with wrap-around support services through Capital IDEA relative to registration for or receipt of low-intensity LFA services. They measured these incremental training impacts over a 3-year period following program entry.

By 8 quarters after entry into training, Capital IDEA participants⁶ enjoyed a measurable earnings advantage over comparison group members (Figure 2). By the end of the measurement period this advantage was large (\$1,000/quarter), statistically significant and still widening.⁷ Moreover, by the end of the period, participants were experiencing roughly a 75% gain in quarterly earnings compared with their 2-year pre-program average. It is also noteworthy that the earnings of comparison group members who only had the benefit of LFA services essentially flattened out at 7 quarters. This pattern is consistent with that described by Kreuger (2003) for similar investments in training.

⁶ Participants include both graduates and dropouts no longer associated with the program.

⁷ Longer-term results will be released as added UI wage data become available.

Figure 2. Capital IDEA vs. Comparison Group Earnings Over Time



Source: Smith et al. (2007, p. 31)

Employer Impacts

Employer impacts from workforce or human capital investments, ranging from OJT and formal apprenticeship training to more informal work-based learning, can take the form of enhanced productivity and profits, as well as improved economic competitiveness over time. Bassi et al. (2001) analyzed ASTD data to explore the connection between employer’s training investments and company performance. They concluded that firms that invested in training were more productive than those that did not, but that it was difficult to directly connect higher performance levels with the training offered). However, Barron et al. (1997) analyzed multiple employer data sets maintained by the Upjohn Institute and found that “training results in substantial productivity growth: a 10 percent increase in training raises productivity by 2 percent during the first three months of employment” (p. 185). In addition, they concluded as follows (p. 186):

“On-the-job training also increases wage growth. Whether looking at wage growth in the first three months or first two years of employment, the data indicate significant increases in wages associated with training. These findings confirm the predicted effects of on-the-job training on wage and productivity growth. ... A 10 percent increase in training results in only a 0.2 percent growth in wages, or about one-tenth the magnitude of the impact of training on productivity growth.”

This suggests that employers likely garner most—around 90 percent—of the gains from investments in OJT in the form of increased productivity and presumably higher profits as well. This makes sense in that most employer-supported OJT tends to be firm-specific

training, but Barron et al. also noted that employers invest substantially in general training as well.

A ten-year study of employee and employer dynamics in five industries—financial services, trucking, semiconductors, software production and retail food—by Brown et al. (2006), one of the first major analyses of the emerging Longitudinal Employer Household Dynamics database created by the Bureau of the Census, concluded (p. 54):

“The basic message here is that businesses with higher-quality workforces and lower churning are more likely to survive. This message does not imply that one-size-fits-all or that these factors are perfect predictors of success or failure.”

Brown et al. found that the relationship between worker quality and firm survival over the 10-year period was more pronounced in the traditional industries, i.e., financial services, trucking, and retail food, than in the others. As one of the authors articulated the message recently, high-road strategies involving investments in workers’ skills are a proven survival strategy for many employers.⁸

Finally, the Canadian Apprenticeship Forum (2006) conducted an analysis of the costs and benefits to employers of apprenticeship programs in 15 skilled trades based on a national survey of Canadian employers.⁹ The Forum found that benefits were considerably more difficult to measure than costs and primarily gathered qualitative information on benefits. Among other things, they concluded (pp. 7-8):

- Apprenticeship was a worthwhile investment, yielding employers \$1.38 for each dollar invested;
- Two-thirds of employers indicated that apprentices began generating net benefits by the end of their second year or earlier; and
- Hiring apprentices ensured that the organization had skilled labor and lower turnover rates.

Broader Economic Effects

Investments in human capital also have contributed substantially to U.S. economic growth over many decades. Examining the 3.2 percent annual rate of growth of potential national income in the U.S. from 1929 to 1982, Edward Denison (1985) estimated that increases in worker education accounted for 13 percent of the increase. Focusing on the rate of growth of potential national income per capita over the same period, Denison concluded that education’s contribution was twice as large, at 26 percent. Based on a review of the recent literature, Griliches (1997, p. S337) suggested that education and

⁸ Presentation by Dr. Julia Lane at the National Governors Association’s Annual Workforce Policy Conference in Washington, D.C., December 10, 2007.

⁹ The trades were: automotive service technician, bricklayer, carpenter, construction electrician, cook, heavy duty equipment operator, industrial mechanic (millwright), insulator, machinist, mobile crane operator, motor vehicle body repairer, refrigeration and air conditioning mechanic, sheet metal worker, sprinkler system installer, and tool and die maker.

human capital may have contributed as much as one-third of the increased growth in the U.S., but that its *measured* contribution may have dropped recently largely due to the increased use of educated labor in sectors like government and services generally where output is more difficult to measure. Finally, Heckman and Kreuger (2003) point out that increased human capital investments can play a major role in redressing inequality in the nation.

SUMMING UP: WORKFORCE DEVELOPMENT WORKS

The weight of the evidence suggests that workforce development—broadly considered, when examined from different vantage points and perspectives and when measured appropriately—truly does work.

- A wide range of strategies, public and private, is effective for adult participants, producing returns on a par with those for many financial investments.
- Workforce investments also produce widespread benefits for employers and society as a whole, leading to sustained increases in productivity and economic growth.
- Returns from these investments are particularly remarkable when the magnitude and intensity of workforce investments is considered relative to the size and complexity of the barriers they are attempting to address.

Two brief quotes from Kreuger (2003, p. 23-24, author's italics) are useful by way of closing:

“[T]he *social return* from investment in education and training for poor children, from infancy through early adulthood, is at least as great as the social return from investments in education and training in the general public.”

“[I]nvestment in human capital for the disadvantaged seems to yield as great a return as investment in the equity market.”

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