

Appendix F

Training investment studies

The “value” of training: what do we know from previous studies?

Most relevant to the Baltimore situation is a series of studies done on the predecessor system to WIA, the ‘Job Training Partnership Act’ (JTPA), which provided training for economically disadvantaged adults (under its Title II-A) and special target groups (disadvantaged youth, Indians and Native Americans, migrant and seasonal farm workers, and dislocated workers) from 1983 to 1999.¹ A ‘National JTPA Study’ was carried out by Abt Associates and the Manpower Demonstration Research Corporation (MDRC) to assess the impacts of JTPA. They looked at 16 service delivery areas (“SDAs”, the predecessors of local workforce investment areas) around the country between November 1987 and September 1989, using a classical experimental design focusing on disadvantaged adults and out-of-school youth.

This study found a statistically significant but modest impact on the earnings of adult men and women for the 30-month follow-up period and no impact for out-of-school youth. The impacts for the first year following training for the treatment group were \$847 for women and \$856 for men, with both figures statistically significant. The estimated impacts for youth were negative and insignificant. Further differences were found between types of training. Adult women who were assigned to receive on-the-job training or job search assistance had a statistically significant impact of \$2,292 over the 30 months following random assignment (including the training period), but for women receiving classroom training the estimated impact was \$630 and not significant. For adult women assigned to receive “other services,” the impact was a statistically significant \$3,949. For adult men, the estimates for all three service strategies were positive but not statistically significant: \$1,287, \$2,109, and \$941 for classroom training, OJT/JSA, and other services, respectively. Finally, the net present value of the program for adult men and women was a “social benefit” of about \$500, but for youth the program had a net “social cost” of \$1,180 for men and \$2,923 for women, over the 30-month observation period.²

The national JTPA study was supplemented by the General Accounting Office (GAO) which merged social security earnings data with study data to develop longer-term estimates of the program impact on earnings. GAO found no significant effect of JTPA on earnings or employment rates after five years, although Barnow has re-examined their data and concluded earnings impacts for adult men and women remained fairly consistent over the five-year follow-up period. Eberwein, Ham, and LaLonde (1997) also used the National JTPA Study data to explore whether the earnings gains found in that study for adult women enrolled in classroom training resulted from a reduction in the time spent unemployed or from an increase in the length of employment spells. They found that receipt of training significantly reduces the length of *unemployment* spells but does not affect the length of *employment* spells. Their findings reinforce the concern that traditional employment and training programs have not done enough to foster employment retention among participants, once trained and placed.

¹ Barnow B and Gubits D (2002) “Review of Recent Pilot, Demonstration, Research, and Evaluation Initiatives to Assist in the Implementation of Programs under the Workforce Investment Act”, Chapter 5 of the *Strategic Plan for Pilots, Demonstrations, Research, and Evaluations, 2002–2007*, prepared for the U.S. Dept. of Labor Employment and Training Administration, Washington DC, October (draft). Much of this section draws heavily on Barnow and Gubit’s original text, with permission.

² See: Bloom, Howard S., Larry L. Orr, Stephen H. Bell, George Cave, Fred Doolittle, Winston Lin, and Johannes M. Bos (1994) *The National JTPA Study Overview: Impacts, Benefits, and Costs of Title II-A*, Abt Associates, Bethesda, MD, and (1997) “The Benefits and Costs of JTPA Title II-A Programs,” *The Journal of Human Resources*, Fall; and Orr, Larry L., Howard S. Bloom, Stephen H. Bell, Fred Doolittle, and Winston Lin (1996) *Does Training for the Disadvantaged Work? Evidence from the National JTPA Study*, Urban Institute Press, Washington, DC.

Isbell *et al* looked more at case studies, program features, and best practices, in nine JTPA-affiliated programs that recruited, screened, assessed, and trained new workers.³ All the participating firms indicated that they were having trouble finding a sufficient number of skilled entry-level workers, and they hoped that the program would help them solve this problem. The employers' other immediate objectives included: increased productivity; increased quality of output; improved timeliness of product delivery; improved customer service; facilitating hiring and training of workers in the community; and increased worker morale and reduced turnover.

The programs all involved *customized* training (tailored to the jobs and skill requirements of the employers), although there were major differences across the nine case studies in terms length of time for training, trainee type, and industry destination. She found the companies were heavily involved in curriculum development to assure that the training would allow successful participants to be immediately productive, and recruiting, screening, and assessing potential trainees was also a shared responsibility. The training programs used a combination of classroom, laboratory, and hands-on training. Participants were assessed for adequate reading and math skills, and when needed, basic skills training was provided for participants who were slightly below the required reading or math level for the job. Most of the programs included pre-employment and workplace skills, and most of the companies provided a written or oral commitment to hire successful program completers.

The case studies did not include an impact evaluation, but the outcomes exceeded those of most JTPA programs at the time. In all the case studies, over 80% of the participants completed the training, and in most cases over 90% finished. The participating employers hired almost all those who completed the training, and the wages were above the average for JTPA training at that time. The employers believed that retention was higher than usual. Finally, the costs ranged from \$900 to \$2,700, with an average of \$2,000.

Holzer *et al*,⁴ went further into the impacts for employers, using data from the 'Michigan Job Opportunity Bank Upgrade' program. This program provided state financing for manufacturing firms through over 400 grants, averaging \$16,000 per firm, between 1986 and 1990. Looking at data from both successful and unsuccessful applicants to the program, the authors were able to look at total hours of training and the product scrap rate. They found receipt of training grants was associated with a large and significant – but one-time – increase in training hours, and also with a more lasting reduction in scrap rates. Specifically, they calculated every additional hour of training that was stimulated cost roughly \$6 to \$7 of government funds.

Duscha and Graves reported on the extent of such state-financed customized training programs across the country. They found 45 states operated such programs in the mid-1990s, and the majority targeted incumbent workers. These state programs differ from federal programs such as JTPA and WIA because they are focused exclusively on the employer and they rarely have targeting requirements for individual workers. They are also governed by state statutes and budgets, and so vary tremendously from state to state in size, whether they are intended to assist existing firms or to incent out-of-state firms to relocate, whether they focus resources on target

³ Isbell, Kellie, John Trutko, Burt S. Barnow, Demetra Nightingale, and Nancy Pindus (1996a) *Involving Employers in Training: Best Practices*, U.S. Department of Labor, Employment and Training Administration, Washington, DC, and (1996b) *Involving Employers in Training: Case Studies*, U.S. Department of Labor, Employment and Training Administration, Washington, DC.

⁴ "Are training subsidies for firms effective? The Michigan Experience", by Holzer H, Block R, Cheatham M, and Knott J, *Industrial and Labor Relations Review*, v46(4), July 1993, pp625-635.

industries or manufacturing or high-tech, whether they assist only small or medium or large firms, and so on.⁵

An update study of state customized training programs in 1997 by the National Governors' Association⁶ found such programs in 47 states, with a total budget of \$575 million – over double the value of ten years earlier. NGA found states largely targeted existing firms and workers in larger manufacturing industries, and provided generic vocational and technical skills. The largest programs were funded by a surcharge on unemployment insurance or by industrial revenue bond (IRB) sales, but project and trainee costs varied significantly. A third update, begun by ASTD in 2001, found 107 such state programs, 50 of which had not been in the NGA study just three years earlier.⁷ However, this latest total contains a number of “living dead”, indicating a degree of morphing, re-naming, and inactivity in states over time, from one Governor's administration to the next and from one budget to the next.

Employers! Here's what research studies have shown training can do for you:

- reduce scrap rates
- increase productivity and the rate of productivity growth
- complement your other investments in new physical capital
- increase your total shareholder return
- increase your profit margins
- increase company income per employee
- increase price-to-book ratios.

Other studies have looked at the implications of training for employers. Bartel looked beyond specific indicators to consider the impact of training programs on labor productivity as a whole.⁸ She looked at personnel policies and economic characteristics of 595 manufacturers from a 1986 Columbia Business School survey, to measure the impact of formal training programs on labor productivity. She found that businesses operating below their expected labor productivity levels in 1983 but which also implemented new employee training programs after that date, realized significant increases in their rate of productivity growth between 1983 and 1986. This increase was enough to bring those businesses up to the labor productivity levels of comparable organizations.

Black and Lynch attempted to link human capital investments and productivity, using data from 1990 and 1993 on over 2,900 establishments from the National Center on the Educational Quality of the Workforce's “National Employers Survey”.⁹ They found that the average educational level within the establishment has significant positive effects within both manufacturing and non-manufacturing sectors, and they estimated that a 10% increase in “average educational level”

⁵ Duscha S and Graves (1995) *National Customized Training Report*, Duscha Advisors, for U.S. Dept. of Labor, Sacramento, CA, and (1999) *State Financed and Customized Training Programs*, KRA Corporation, Silver Spring, MD.

⁶ *A Comprehensive Look at State-Funded, Employer-Focused Job Training Programs*, by Brian Bosworth of Regional Technology Strategies, for the Employment and Social Services Policy Studies Division, Center for Best Practices, National Governors' Association, Washington DC, 1998, at: <http://www.nga.org/cda/files/FULLREPORT.pdf>

⁷ Thompson C and Beauvais J (2001) *State Funded Training Programs Contact List*, (internal document), ASTD, Alexandria, VA.

⁸ “Productivity Gains from the Implementation of Employee Training Programs”, by Bartel A, *Industrial Relations*, v33(4), October 1994, pp411-425.

⁹ “Human Capital Investments and Productivity”, by Black S and Lynch L, *AEA Papers and Proceedings*, v86(2), May 1996, pp263-267.

would lead to 8.5%-12.7% increases in productivity. Their other findings were that past training increases current productivity, that off-the-job training has a greater impact than other types, that computer-skills development has a positive impact regardless of industry, and that employers who focus on grade levels when hiring also experience significantly higher productivity than competitors.

Lynch and Black next used data from a 1994 survey to examine how the incidence, content, and extent of employer-provided training, were linked to workplace practices and characteristics and physical capital investments.¹⁰ They found substantial variation by employer size and industry in the provision of formal training, and that the percentage of workers given training was highest in establishments that had made large investments in physical capital, or had adopted new forms of work organization. They suggested their findings show that employer-provided training complements, rather than substitutes for, investments in physical capital and education.

Most recently, Bassi *et al*¹¹ attempted to answer the question “do firms’ investment in education and training payoff?”. Using 1996-98 data on 575 publicly-traded U.S. firms in the ASTD Benchmarking Service database, they found that training investments *are* significantly related to later total shareholder return (TSR). Specifically, an increase of \$680 of training expenditures per employee was associated with, on average, a 6% improvement in TSR the following year, even after controlling for other factors like industry type, company size, and prior financial performance. Firms with above median training investments for the group had a TSR that was 86% higher than that of firms below the median, and 45% higher than the stock market average. Firms in the top quartile also enjoyed significantly higher profit margins, income per employee, and price-to-book ratios, than firms in the bottom quartile. The authors suggested these results could be used inside firms to justify training compared to other potential investments, and outside of firms as a way for stock market analysts to predict share values.

The value of training: how do we know it?

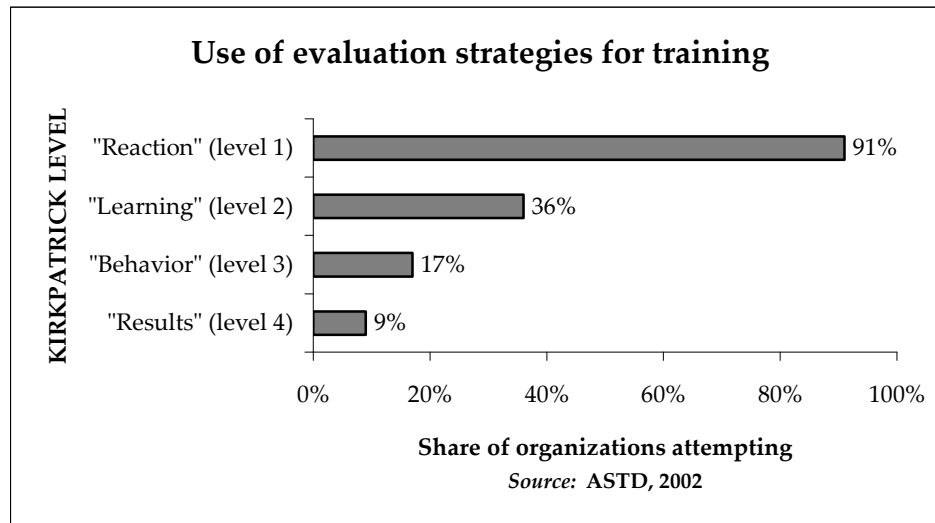
Human resources, organizational development, and “workplace learning for performance” professionals commonly draw on the “Kirkpatrick model” when structuring their evaluations of training.¹² This scheme has four “levels”, and the share of all organizations in the ASTD Benchmarking Service database¹³ attempting each different level in 2001 is shown in the bar chart below.

¹⁰ “Beyond the Incidence of Employer-Provided Training”, by Lynch L and Black S, *Industrial and Labor Relations Review*, v52(1), Oct. 1998, pp64-79.

¹¹ *Profiting from learning: do firms’ investment in education and training payoff?* Research White Paper by Lauri Bassi, Jens Ludwig, Dan McMurrer, and Mark Van Buren, for ASTD and SABA, Alexandria, VA, Sep. 2000.

¹² Kirkpatrick D (1998) *Evaluating Training Programs*, 2nd edition, Berrett-Koehler Publishers, San Francisco.

¹³ In this total, 88% were private corporations and 12% from the public sector.



Level 1 is the "Reaction" level, measuring the learner customer's satisfaction with the course, content, delivery method, and instructor. This is the easiest method of evaluation, requiring only a simple survey form administered at completion, and so is undertaken in over 90% of organizations. However, it is also in some ways the least informative method.

The second level is the "Learning" level, focusing on trainee mastery and retention of content. This usually requires a final exam or rating of the trainee by the supervisor, and is used by just over one-third of all organizations.

The third level is the "Behavior" level, which focuses on whether the trainee did anything different or performed better, as a result of the training. This method has seen a surge in the number of organizations using it in recent years, because of the shift away from passive acceptance of exam results and towards a more dynamic "demonstration of competencies" approach, and because of the growing availability of process-monitoring technologies at the individual work-station level. Level 3 evaluation is now used by about 17% of organizations.

The fourth and final level in Kirkpatrick's original scheme is the "Results" level. This focuses on the "bottom-line" implications of training: productivity increases, the value of additional units made, or sales achieved, the reductions in costs through lower error and scrap rates, reduced staff turnover, increased customer satisfaction, repeat customer business, and so on. This fourth level produces the kind of hard business information most often sought by managers, but it also requires a more sophisticated study design, more detailed measurement and tracking of activities and costs, and more time and expertise to complete, than do the other three levels. As a result, Level 4 evaluations are usually only undertaken for large volume/high cost/high visibility training initiatives, and so appear in under 10% of all organizations.¹⁴

More recently, Phillips has supplemented this basic four-level Kirkpatrick framework with a new "Level 5", which he calls "return on investment". This focuses on comparison of specifically the financial costs and benefits of training, and is the focus of section 2.7.

¹⁴ *Training for the 'Next Economy': An ASTD State of the Industry Report on Employer-Provided Training in the United States*, by Thompson C, Koon E, Woodwell W, and Beauvais J, November 2002, American Society for Training and Development, Alexandria, VA.