

**Workforce Development in the United States:
Changing Public and Private Roles and Program Effectiveness**

Carolyn J. Heinrich
Vanderbilt University

June, 2016

Prepared for the book:

*Labor Activation in a Time of High Unemployment:
Encouraging Work while Preserving the Social Safety-Net*

Introduction

The U.S. Department of Labor (USDOL) was established in 1913, although an active role for the department in labor activation and training did not begin until the 1930s, when President Roosevelt appointed Frances Perkins to his Cabinet to develop plans to alleviate unemployment and spur recovery from the Great Depression. Prior to the Manpower Development and Training Act (MDTA) of 1962 that officially established the federal public employment and training system in the U.S., programs including the Civilian Conservation Corps, the Works Progress Administration (WPA), the Public Works Administration and the National Youth Administration were viewed as temporary solutions to workforce challenges, with unemployment the primary concern. The Comprehensive Employment and Training Act (CETA) of 1973, which succeeded MDTA, extended the WPA approach in that it sought to provide work for the long-term unemployed and those with low incomes, as well as summer jobs for low-income youth. CETA also aimed to cede more control to state governments in administering employment and training programs, a trend that was advanced under the Job Training Partnership Act (JTPA) of 1982, reflecting the Reagan era of “New Federalism.”

Compared to its predecessors, and consistent with the Reagan administration agenda to reduce the role of government, JTPA was distinguished by a more decentralized administrative structure that enlarged the role of the private sector in arranging for and delivering publicly-funded employment and training services. JTPA also substantially diminished the public sector’s part in directly creating employment opportunities by eliminating the public service employment and participant stipend components of CETA. In addition, JTPA introduced a performance standards system to measure program outcomes across states and local service delivery areas, with the objectives of increasing local-level accountability and encouraging more efficient

program management. JTPA was also the first federal program in the U.S. to adopt an *outcomes-based* performance management system that set national standards for program performance and attached incentives and consequences to the results reported by states. These reforms to U.S. labor administration reflected the overarching goal of the Reagan Administration to lessen the federal government's fiscal responsibility and managerial role in addressing social problems.

The Workforce Investment Act of 1998 (WIA) replaced JTPA beginning in July 2000, but continued the governing philosophy that centralized authority should be limited so that state and local agencies can adapt employment and training programs to their own political and economic contexts. This has also contributed to considerable variation across states and local areas in how workforce development programs are organized and how and what services are delivered. Under JTPA, the non-overlapping program jurisdictions were known as Service Delivery Areas, but some job-training agencies were organized as public entities at the state, county or municipal government level, while others were formed as private, not-for-profit or for-profit organizations. In the WIA program, states were required to establish a State Workforce Investment Board, including the Governor, members of the state legislature, and representatives of business, labor, educational entities, economic development agencies and community-based organizations, and the local jurisdictions (Workforce Investment Areas) were directed and supervised by a board of representatives from business, labor, the community and local elected officials. The boards play a central role in determining who is served, the types of services made available, and who should provide the services (within the limitations of the statute).

Currently, one of the key mechanisms for local level planning and coordination is the one-stop career center that every local workforce investment area is required to operate. One-

stop career centers (also known as American Job Centers or AJCs) are intended to coordinate and co-locate more than a dozen federally funded education, workforce and worker support programs to offer a basic menu of services that can help to meet the needs of a diverse set of individuals seeking assistance with training and/or employment. The primary services provided include vocational training, on-the-job-training (OJT), basic or remedial education, job search assistance, work experience, and other services such as counseling and assessment, job-readiness activities and case management. The WIA (Gold Standard) experimental evaluation, for which data collection is ongoing, found considerable variation across the AJCs in how job seekers access these services, but also increasing collaboration among the co-located partners to support client participation (Social Policy Research Associates, 2016). Under the new Workforce Innovation and Opportunity Act (WIOA), which became effective July, 2015, expectations for coordination have been further elevated, as partnerships and co-location with other programs such as the Wagner-Peyser Employment Services, Temporary Assistance for Needy Families (TANF) and U.S. Department of Education programs are now *mandatory* rather than encouraged (Civic Impulse., 2016).

With new legislation, the first in 15 years, and new legislative and program priorities under WIOA, now is an appropriate time to reflect more broadly on the public sector's role in workforce development and labor activation, and to also consider what the research base to date suggests about how effective our programs have been in supporting our overarching workforce development goals of helping job seekers access the employment, education, training, and support services they need to succeed in the labor market and for employers to compete effectively in the global economy.

Role of the Public Sector in Supporting Human Capital Development

Since their origins (as described above), employment and training efforts in the U.S. have relied on some combination of public and private sector resources, although private sector employers account for the lion's share of workforce development activity and continue to dwarf public sector investments. U.S. government spending on workforce development has averaged less than 0.5 percent of Gross Domestic Product (GDP) in recent decades (and closer to 0.2 percent in recent years), shares that are well below most western European countries, such as Denmark, Belgium, the Netherlands and Finland that have devoted up to 10 times greater shares of GDP to labor market policy expenditures (e.g., Auer et al. 2008; Martin, 2014). In terms of the incidence of employer-sponsored training, the U.S. is in about the middle of the distribution (relative to other countries), although U.S. employers do less well in particular categories, such as occupational training for younger workers (Lerman et al. 2016). These patterns raise questions about whether current levels of U.S. workforce investment are adequate, as well as the extent to which public workforce investments should complement or undergird employer-led training, or whether they should be targeted toward individuals or the types of workforce investments where private sector efforts are lacking.

Economic theory on returns to training suggests that workers who acquire more training, if it in turn increases their individual productivity, should realize returns in the form of higher wages (Mincer 1974). Employers that provide training specific to their firm's needs are likely to increase a worker's wage to reduce turnover and are less likely to provide training when competition for employees is higher among firms (Rzepka and Tamm, 2016), with the implication that returns to (firm-specific) employer-provided training are more likely to be privately realized. This suggests an unpersuasive case for public subsidization of this type of

training. However, by the same line of reasoning, employers may underinvest in more general or portable types of training that would be more likely to generate external benefits, not only for other employers, but also for economic growth and efficiency (that improve societal well-being), if training increases worker productivity. Using firm-level data from Ireland that distinguished between general and specific training, Barrett and O'Connell (2001) found that general training has a statistically significant, positive effect on productivity growth that persists when controlling for a range of factors (e.g., firm size, initial level of human capital, corporate restructuring, etc.), but they did not find comparable effects for specific training. The American Society for Training and Development estimated that about three-quarters of employer spending on training is for formal *internal* workplace learning (Rivera and Paradise 2006), and Lerman et al.'s (2004) analysis likewise found that employer training efforts disproportionately favor better-educated and skilled workers. In addition, Bassanini et al. (2007) similarly found that in Europe (as in the U.S.), the provision of training by private firms increases with educational attainment and the skill-intensity of occupations. In sum, privately funded training is more often likely to be narrowly targeted both in terms of who gets training (the higher skilled in more competitive markets) and in the type of training offered (i.e., firm-specific, internally oriented).

Both theoretical and empirical analyses (Gersbach and Schmutzler 2006; Holzer et al. 2011; Holzer 2013) suggest that as labor markets become more globally competitive and integrated, an even smaller segment of the workforce will have sufficiently high skills and productivity levels to induce additional investments by their employers. This, in turn, suggests a worsening inequality between higher- and lesser-skilled workers in access to private sector training opportunities and wage increases. Gersbach and Schmutzler attribute at least part of the decline in apprenticeships in Germany and some of the widespread decline in the provision of

general training to product market integration (associated with globalization) that reduces training investments made by firms. Citing his own work with colleagues (2011) and that of Acemoglu and Autor (2012), which points to “a growing complementarity over time between personal skills and firm wage premia, and strong labor market demand relative to supply for workers with these skills,” Holzer (2013, 6) questions whether the U.S. would be competing more effectively in the global labor market for “good jobs” if its public policies were more effectual in increasing human capital. There appears to be a growing consensus in labor market analyses that we are under-supplying workers with the required skills and credentials to satisfy labor demand for well-paying middle- and high-skill jobs, despite the apparently attractive labor market incentives for young and working-age individuals to make these investments (Fouarge et al., 2013; Goldin and Katz 2008; Autor and Handel 2009).

This raises another question about the role of the public sector in workforce development: if young, working-age people are not responding to labor market incentives to pursue postsecondary education and training opportunities that would prepare them for well-paying jobs that are in high demand, is there a role for the public sector to address this disconnect or the market failings that contribute to it (e.g., imperfect or asymmetric information, labor markets that are not perfectly competitive, externalities, etc.)? In the U.S. and in Europe, some suggest that we need to increase and improve opportunities for career and technical education before young people leave high school (Biavaschi 2013; Rumberger 2011), and debate in the U.S. is ongoing about whether an over-emphasis on college preparation in high schools has steered students away from technical course-taking (or squeezed them out of high school course offerings), resulting in an inadequate pipeline of students trained for or on a trajectory to work in well-paying, middle-skill jobs. A growing body of research points to the importance of offering young

people education and training opportunities that they see as relevant to their future job prospects and that provide this career context for learning, particularly for low-income or disadvantaged youth who might otherwise drop out of high school (Center for Education Policy 2012; Holzer 2013; Lerman 2007). New program models are also being tested for disconnected youth (i.e., those not working or in education or training), such as Project Rise (in New York, New Jersey and Kansas City) that are aimed at increasing their educational attainment and employment opportunities through services that combine classroom education, internships, case management and community projects (Manno et al., 2015). Although the evidence base of *proven* youth programs is still relatively thin, we are not lacking for *promising* interventions (based on initial outcomes or impacts) that engage youth in career and vocational education that is targeted toward economically growing sectors (Heinrich and Holzer, 2011); however, funding for these programs is not keeping pace with the level of program need among youth (Field 2011).

Both public and private sector investments in training will likely be constrained by tight budgets for some time to come, making it increasingly important that spending is well-targeted in terms of how and for whom it can be most effective, as well as in consideration of where skills shortages lie. The existing evidence base on the effectiveness of workforce development programs, however, is limited in many ways. With the possible exception of the WIA Gold Standard impact evaluation (in progress), even the most comprehensive evaluations have been restricted in terms of the coverage and representativeness of the programs they have evaluated and the outcomes they have examined. Still, there are some consistent findings across rigorous research efforts that offer some basic guidance for workforce development policy, as well as research that illuminates where findings are mixed or suggest promising interventions that would benefit from further study (and/or where better data are needed for evaluation).

The Evidence Base on Training Program Effectiveness and its Limitations

The literature on employment and training program impacts is vast and spans approximately four decades of research and evaluations. Fortunately, in recent years, scholars have undertaken efforts to synthesize this literature, including meta-analyses of active labor market policy evaluations (Card et al. 2010; Haelermans and Borghans, 2012), training programs worldwide (Fares and Puerto 2009) and U.S. government-sponsored training programs and welfare-to-work programs (Greenberg et al. 2003, 2005), as well as other summaries of the empirical evidence (Decker 2011; Fares and Puerto 2009; Brunello et al. 2007; Greenberg et al. 2006; Heckman, LaLonde, and Smith 1999). The meta-analysis by David Card, Jochen Kluge and Andrea Weber includes 97 studies of active labor market policies from 26 countries between 1995 and 2007 and considers short-term, medium-term and long-term impact estimates, as well as the effectiveness of different program types. Most of the studies that they analyze are nonexperimental in design, although they find, along with Greenberg, Michalopoulos and Robins (2006), that experimental and nonexperimental evaluations of government-funded training programs (or active labor market policies) yield similar results and conclusions about their effectiveness. Of course, that does not imply that these studies are without limitations regarding what conclusions we might draw or what generalizations we might make from them.

Table 1 presents a summary of the evidence base that focuses on more recent and/or comprehensive studies and existing reviews (e.g., syntheses and meta-analyses) of the workforce development/active labor market policies and programs. This summary is not intended to be all-inclusive of the large and continually expanding body of research and individual studies on these programs, but rather to focus on some of the latest evidence and on sources of cumulative knowledge and findings to date. The WIA Gold Standard impact evaluation is not included in

this table because as of 2016, the study findings on program impacts have not yet been formally released. The table provides basic information on the studies included, the types of programs and policies they examined, and findings on program and policy outcomes. Other findings and limitations of the studies are also indicated in the summary table.

Perhaps what stands out most in the summary table is how limited the evidence base for workforce development/active labor market programs and policies is in terms of the measurement of outcomes, program costs and coverage, and longer-term impacts. If numeric estimates of program impacts are reported, they are almost exclusively focused on average employment and/or earnings or wages. Only a few studies monetize other impacts, such as government savings or reductions in welfare and crime, and there is little discussion or measurement of skills, credentials or qualifications gained through training. Of 345 studies of training programs in 90 countries reviewed in Fares and Puerto's (2009) meta-analysis, only 16 attempted some accounting of costs and benefits, and obtaining accurate data on even direct program costs is a frequently acknowledged limitation in this body of research. The studies also vary in the length of time that they are able to follow program participants after receipt of services, and those studies that have followed outcomes over a longer period provide ample evidence that program impacts may change (grow or decay) over time. At the same time, one can make some broad generalizations across the study findings that hold in a wide range of study samples and even different country contexts.

Evidence on impacts of different types of training

One of the most commonly provided types of training across countries is vocational training, which the majority of studies find to be effective in increasing adult earnings. However, the research base consistently reports that there are initial "lock-in" effects of

classroom or vocational training, with early negative impacts that turn positive and increase over time (Andersson et al. 2012; Caliendo et al. 2011; Card et al. 2010; Decker 2011; Heinrich et al. 2008; Schochet et al. 2006). These studies suggest that vocational training program impacts typically turn positive by about 18–24 months after program entry and then grow for at least several years. Comparing vocational training effect sizes across studies is somewhat more challenging, because of the variation in how impacts are reported. In fact, the meta-analysis by Card et al. (2010) was only able to quantitatively compare training effect sizes for a single outcome (employment) and a subset of studies reviewed, so the authors opted instead to summarize the research findings according to whether program impact estimates were significantly positive, significantly negative, or null or inconclusive.

Looking at the studies with results for adults, the bulk of average impact estimates come from U.S. program evaluations, which typically estimate training impacts on earnings per quarter. Across these studies, the estimates for JTPA and WIA training programs are within a fairly narrow range of \$320–\$887 per quarter for participants, particularly given the varying study samples and methodologies (Andersson et al. 2012; Bloom et al. 2003; Decker 2011; Heinrich et al. 2008; Hollenbeck et al. 2005). Some of these studies, along with others, translate earning effects into percentage terms, with estimated effects (earnings increases) of training programs in the U.S. and abroad ranging from 5 to 26% of average earnings (Bloom et al. 2003, 1997; Caliendo et al. 2011; Decker 2011; Fares and Puerto 2009; Greenberg et al. 2005; Haelermans and Borghans 2012; Heinrich et al. 2008; Hollenbeck et al. 2005). Estimated effects of training on the probability employment are also positive and statistically significant across a majority of studies (and in different countries). These estimates of employment increases range from about 5 to 29 percentage points (measured monthly or quarterly), with some differences

observed between women and men, and by specific training type and time following program entry (Caliendo et al. 2011; Card et al. 2010; Decker 2011; Fares and Puerto 2009; Heinrich et al. 2008; Hollenbeck et al. 2005).

Studies that examine program effects by training type also consistently find that job search assistance is more likely to generate positive impacts *in the short run* that then fade in magnitude with time, in contrast to the impacts of vocational training that take a longer time to mature but then turn positive and grow larger (as noted above). Unfortunately, a number of studies group together job search assistance and on-the-job training or wage subsidies in analyzing their effectiveness, which makes it challenging to identify their differential impacts or effect sizes, to the extent that they vary. Caliendo et al. (2011) find wages subsidies to regular employment to be the most effective component of active labor market policies, with 20 percentage point impacts on monthly employment (vs. 10 percentage points for vocational training). Similarly, Haelermans and Borghans (2012) compare the average number of hours in on-the-job training with the average number of hours spent on schooling and conclude that the returns to on-the-job training are substantially higher (yielding a wage increase of 30 percent, compared to an 8 percent average return to education). Haelermans and Borghans also report that there is substantial heterogeneity in the wage effects of different training courses (identified via the Q-statistic in their fixed effects model), but their study does not shed any light on what types of courses are more effective. In their meta-analysis, Fares and Puerto (2009) distinguish between programs that combine classroom and workplace training and those that offer only one type of training or the other, and they conclude that impacts are larger and positive for those programs that offer these training services together. However, their study appears to be exceptional in its attempt to consider the combined effects of participating in multiple types of

training; it is unclear if existing data are not sufficiently fine-grained to make these distinctions at the micro or participant level, or if the research approaches to estimating program impacts have been too coarse.

In the U.S., there are several new federally-funded subsidized employment demonstration programs that are being experimentally evaluated and offer an opportunity to identify the impacts of on-the-job training (as a training tool) or subsidized employment that is intended to provide work-based income support. These programs include the Subsidized and Transitional Employment Demonstration (STED) and the Enhanced Transitional Jobs Demonstration (ETJD), which are designed to provide evidence-based “enhancements” or supports (e.g., case management and supportive services such as transportation) to increase their effectiveness compared to earlier OJT or subsidized employment program models. These programs are currently focusing on two target populations among job seekers: low-income non-custodial parents and ex-offenders. Previous studies of subsidized, public sector employment programs; from the early JTPA study results to more recent summaries of evaluation evidence, find that programs offering subsidized *public* jobs are the least likely to yield positive impacts on employment and earnings (Bloom et al. 2003; Caliendo et al. 2011; Card et al. 2010). This may explain in part why even with extraordinarily high unemployment rates for working-age adults that occurred in the recent Great Recession, there was little discussion or public calls for bringing back programs such as those under the CETA program that offered “make-work” public jobs. This new “generation” of subsidized employment initiatives works closely with area workforce boards and aims to place participants in private sector (“competitive”) employment.

Variation in program effectiveness

The evidence on the extent to which training impacts vary by subgroups is largely mixed. For example, some studies find differences in training impacts for men and women, with women generally realizing larger gains from vocational training (Bloom et al. 2003; Decker et al. 2011; Heinrich et al. 2008), while other studies find no gender differences in impacts (Andersson et al. 2012; Card et al. 2010). Alternatively, the evidence base is fairly consistent in finding considerably smaller impacts on employment and little or no impacts on earnings of training programs targeted toward dislocated workers in the U.S. (Andersson et al. 2012; Decker et al. 2011; Heinrich et al. 2008; Hollenbeck and Huang 2006; Social Policy Research Associates 2013). In general, it appears that the “lock-in effects” (or foregone earnings associated with training) are more costly for dislocated workers, who tend to have stronger (higher) earnings histories than the average training program recipient. The most recent study of U.S. trade adjustment assistance programs suggests that dislocated worker trainees fare better after training when they find employment in their training field and when they receive a degree or certificate through training, particularly women who receive training in health care professional fields (Social Policy Research Associates 2013).

For youth, the evidence base on training impacts is probably more mixed than the conventional wisdom might suggest. On average, most studies find that the impacts of youth training programs are smaller than those for adults. However, possibly even more so than adult programs, they are diverse in design and service mix, which contributes to considerable variation in their effectiveness, and new models for serving youth are emerging that have built on the existing evidence base to improve program design and youth engagement. Caliendo et al. (2011) report positive impacts of German active labor market policies for youth, both shorter-term (for

wage subsidies) and longer-term (for vocational training), with the exception of job creation programs and preparatory training programs (that youth enter before taking apprenticeships). Using World Bank data to look across “country clusters,” Biavaschi et al.’s (2013) research examines the various forms of youth vocational education and training (both at school and on the job) and argues for the importance of combining both elements (in what they describe as a “dual apprenticeship”) to better link youth competencies with employers’ needs. Although they emphasize that their analysis is not causal, they generally find that countries with substantial dual apprenticeship systems (e.g., Austria, Denmark, Germany and Switzerland, which also reach larger fractions of their young people) have more successful youth transitions from school to work, lower youth unemployment rates and fewer disconnections or repeated unemployment spells among their youth. Their findings are echoed by those Eichhorst et al. (2015), who in a similar cross-country analysis find that a dual system which combines school-based education with firm-based training is the most effective. And in Fares and Puerto’s (2009) meta-analysis, they likewise showed that combining vocational education and on-the-job training yields larger impacts, although they reported that youth training program impacts were largest in the Latin American countries, where they observed increases in employment of 5–21 percent and increases in earnings of 10–35 percent.

Indeed, there has been considerable innovation over time in youth training efforts, and the knowledge base on what “works” for youth has likewise been steadily growing, with a wave of new experimental study results expected to be released in the U.S. in coming years (Bloom 2009; Bowles and Brand 2009; Heinrich and Holzer 2011; Research and Evaluation Conference on Self-Sufficiency, 2016). There appears to be a clear trend toward combining classroom/vocational training with career or on-the-job training for youth, with some promising

new approaches to implementing these youth interventions. Some of the innovative program features include: creating smaller “learning communities” to foster a more personalized learning environment and provide more customized instructional support and academic advising; work-based learning components, such as curriculums tightly linked with work/skills training and partnerships with employers to facilitate job-shadowing, on-the-job training, and internships; career fairs, guest speakers and career guidance; college-readiness counseling and pre-college course-taking, along with financial incentives for youth to reach educational or career milestones, and strong peer supports (Heinrich and Holzer 2011; Research and Evaluation Conference on Self-Sufficiency, 2016). Career Academies and Year Up are two such programs that incorporate a number of these features, and for which there is now experimental evidence of their positive impacts on youth and young adults. One year after participation in Year Up, the annual earnings for those who participated were on average 30 percent higher than earnings for control group members. And participants in Career Academies realized an 11 percent increase in average annual earnings (\$2,203 per year) that was sustained over an eight-year follow-up period (Kemple and Willner 2008). Career Academies participants were also 23 percent more likely to be living independently with a child and partner, although the experimental evaluation did not find effects on attainment of postsecondary credentials, standardized test scores, receipt of public assistance, drug use, criminal activity, or health insurance coverage.

With funding from the Department of Health and Human Services, the potential for scaling up the Year Up program is currently being experimentally evaluated in eight program sites that are serving 18-24 year olds with skills training, work experience (through corporate internships) and extensive supportive services. Other experimental evaluations of youth employment and training programs that are underway include Project Rise, which serves 18- to

24-year-olds who lack a high school diploma and are out of school and work. Project Rise participants engage in a year-long sequence of activities (case management, classroom education, paid internships) that are intended to prepare them for unsubsidized employment, postsecondary education, or both. Another example is the Promotor Pathway program, which implements a long-term approach to intensive case management for disconnected and disengaged youth to help them access resources and achieve educational, employment, and healthy living goals. The 18-month experimental evaluation results suggest that participants in Promotor Pathways are experiencing improvements on a range of outcomes (compared to the control group), including educational attainment, reduced births, residential stability and reduced risk-taking behaviors (Theodos et al., 2016).

Like the Career Academies evaluation, the experimental study of the U.S National Job Corps program (shown in table 1) also stands out from other youth and adult program evaluations in terms of its scope (the broad range of program impacts examined) and its longer-term follow-up (Schochet et al. 2006). Academic and vocational instruction and job training are the core components of the Job Corps program, which aims to help youth attain certificates or credentials and to then place them in jobs that match well with the skills they have acquired. Job Corps is also distinctive, however, in its residential component that is intended in part to remove disadvantaged youth from risky contexts that might otherwise interfere with their progression through the program. Schochet et al. find a number of number of positive impacts of the Job Corps program, including an increase in the receipt of GED and vocational certificates by more than 20 percentage points each; positive earnings impacts beginning in the third year after random assignment that yielded an average earnings gain of about \$1,150 or 12 percent by the fourth year; an increased likelihood of having a job with fringe benefits; significantly reduced

welfare receipt (by \$640 on average) and lower arrest, conviction and incarceration rates and reduced criminal activity for all youth subgroups. Still, the estimated impacts on earnings endured through the fifth to tenth years only for 20- to 24-year-olds (who tended to participate in Job Corps longer), and because of the Job Corps program's substantially higher cost per participant, the study authors ultimately concluded that despite the multiple dimensions of positive program impacts, the program did not pass a cost-benefit test when the longer-term effects were taken into account.

The results of the longer-term National Job Corps program evaluation probably served to reinforce a generally negative view of youth training program impacts. However, so few studies undertake a longer-term impact and cost-benefit analysis as did Schochet et al., whether for adult or youth programs, that it is difficult to examine the Job Corps program on equal footing with other programs. For example, some limited information suggests that the per-student cost of Career Academies is probably considerably lower than Job Corps, but Career Academies did not generate the broader impacts of Job Corps (e.g., reducing crime and reliance on public welfare), and no formal analysis of its net benefits to participants and society has yet been performed. In addition, in estimating the impacts of training interventions for dislocated workers, no consideration has been given to potential benefits (or reduced negative impacts) on other family members (e.g., particularly children), despite fairly robust evidence (discussed earlier in this paper) that parental job loss has significant negative impacts on children's educational outcomes and even their later life earnings.

More generally, as noted above, we have done a poor job of measuring both the costs and benefits of our active labor market policies and workforce development programs and in attempting to assess rates of return. Researchers contributing to this body of evidence lament the

idiosyncratic definitions of training that they encounter across surveys and country data; the lack of data on the duration of training, skills acquired and completion of qualifications or credentials, and productivity gains; and the even scarcer data on costs (Bassanini et al. 2007; Card et al. 2010; Fares and Puerto 2009; Haelermans and Borghans 2012; Hendra et al. 2012). Card et al. concluded that a cost-benefit analysis or calculation of social returns to training was not feasible from the 97 studies in their meta-analysis, and Fares and Puerto found only 16 of 345 studies in their research base made an attempt to conduct a cost-benefit analysis. And even in the evaluation of a single national program (WIA), costs incurred per WIA participant were not available across the 12 state programs assessed, and Heinrich et al. (2008) relied instead on available data from published sources to estimate average per capita direct expenditures.

Although the limited availability and quality of data will continue to challenge our efforts to comprehensively measure the costs and benefits of workforce development programs/active labor market policies everywhere, the recent efforts to conduct more experimental evaluations that also include assessments of program implementation and costs is encouraging. And while resource constraints and policymakers' demands for timely information will inevitably limit the timeframes over which we measure program impacts, both researchers and government officials should continue to push for and rustle up resources for longer-term evaluations that are essential for better targeting workforce development resources toward the right interventions and at the best time in the trajectory of an individual's development. Overall, the most recent evidence on training program effectiveness is generally positive, showing impacts on employment probabilities and earnings capacity that are realized by most sub-groups (see again table 1 and also Lechner and Mellyya 2007), and this is based on a fairly narrow approach to the measurement of program benefits. In addition, there is still considerable debate in the literature

as to how much heterogeneity in effects exists across different subgroups of participants that could be exploited to improve overall program effectiveness (Huber et al. 2011; Rinne et al. 2011). The fact that these findings suggest that there are most likely positive returns to the government's role in workforce development brings into question again our meager spending in this area relative to our developed country peers.

Targeting Employment and Training Services

One of the major changes in the U.S. WIA program from its predecessor, the JTPA program, was in its targeting of services. The JTPA legislation specifically required 90 percent of all program enrollees to be disadvantaged, as well as minimum levels of service to particular hard-to-serve subgroups, including youth, high school dropouts, and welfare recipients. In the WIA (and now WIOA) programs, however, the core services—intake and assessment, job search assistance and labor market information—are made available to the general public, with no eligibility requirements. Those who are unemployed and unable to obtain employment through core services can access intensive or training services, which include comprehensive assessment and case management and vocational and on-the-job training. As a result of these program changes, the share of low-income individuals receiving workforce development services was reduced by one-third under WIA, and the length of time they spend in training (as well as expenditures per trainee) has also declined significantly (Osterman 2007). And outside of the Jobs Corps program, federally funded efforts to train youth primarily focus on summer employment. Are current U.S. workforce development programs structured and operated to adequately reach and engage those who are least likely to get access to training without public support?

Research has fairly clearly shown that the lower-skilled and less advantaged are least likely to be offered training by their employers, while employers acknowledge that an important reason they have been slow to increase hiring is due to their inability to find workers with the requisite skills (Besharov and Call 2013). Besharov and Call suggest that employers increasingly see it as the responsibility of the worker (or prospective employees) to seek ways to build skills on their own. If the evidence base on training effectiveness suggested that disadvantaged workers were less likely to gain from receipt of training, then one might make the case that there may be no under-provision of training, and the market or employers (along with the individual workers themselves) have sorted out where the investments in human capital are most likely to be productive. Albeit mixed overall, there is rather considerable support in the evidence base (discussed above) that shows that vocational and on-the-job training can generate significant impacts on individual earnings and employment among the disadvantaged, which presumably reflect gains in productivity to the employers of these workers as well.

These findings suggest a potential policy response in the form of a reallocation of federal training resources. Under WIA, we spent more on the comparatively poor-performing WIA and trade adjustment assistance programs for dislocated workers than we did on training for disadvantaged adults. In fact, WIOA now grants states more flexibility to transfer funding between Adult and Dislocated Worker programs, which could enable states to spend more on the Adult programs that produce higher returns on average and to support a more equitable distribution of training opportunities in the economy (as disadvantaged adults are less likely to be offered training on the job from employers). The plight of dislocated workers gets more media and political attention, in part because plant closings and downsizings are more visible manifestations of employment loss (than those of discouraged workers or the long-term

unemployed), and also because these workers' earnings losses tend to be large. An analysis by LaLonde and Sullivan (2010) suggests that some of the same vocational and technical training strategies that work well for unemployed adults could be more effective for dislocated workers, but for both of these groups, we have not targeted these resources well within the programs. One possible policy response would be for the USDOL to consider folding dislocated workers and funding for this program into an adult training program that more explicitly targets disadvantaged workers, with dislocated workers being one subgroup of disadvantaged workers. An encouraging finding of the WIA Gold Standard impact evaluation (implementation study) is that at the AJCs, local level program staff had already informally started merging resources from the Adult and Dislocated Worker programs by serving adult and dislocated worker clients according to the needs they presented rather than the funding source (Social Policy Research Associates, 2016). LaLonde and Sullivan also offer a number of strategies for improving program effectiveness, such as tying aid for community college course-taking to past performance (e.g., completion rates) for both the individual and the educational institution, as well as more active use of data by workforce development agencies to identify higher-value training programs.

Expanding public and private support and program reach for youth and young adults

The cross-country comparisons referenced in this paper and made by many others contributing to this discussion clearly show that the U.S. lags behind a number of its developed country peers in what it spends both publicly and privately on training relative to GDP. Bassanani et al. (2007) identified the Scandinavian countries, France and New Zealand as the most training intensive countries, and noted that 80 percent of vocational training courses are

paid for or provided by employers in Europe. Is there something that we can learn from other countries about how their public/private partnerships work to sustain higher levels of expenditures on training, as well as to support broader program coverage, particularly for young people and those who are least likely to access training privately?

Robert Lerman (2013; 2016) points out that the U.S. spends more heavily on education but does far less than its OECD peers in the provision of high-quality occupational training for young people. Indeed, the most recent European literature on training effectiveness is focused on discussions about how to blend vocational and on-the-job training and expand partnerships with employers in the provision of education and training, beginning at much earlier ages than we do in the U.S. Lerman reports that apprenticeship programs in Germany, Switzerland, Austria, Australia and even in the United Kingdom are now reaching over 50 percent of young people, while Caliendo et al. (2011) add that dual apprenticeship programs (combining vocational training with on-the-job training) currently account for half of all of German student entries into vocational training each year *in secondary schooling*. In other words, about a quarter of German youth are engaging in on-the-job training alongside of vocational training while completing their secondary education. The training offered is not perceived of as lower-grade or an inferior track, but rather is high-quality and career-focused, leading to a certification that youth can take directly to the labor market or on to additional university-level education.

These systems of education and career preparation for youth stand in sharp contrast to what has been described as a typical U.S. “college for all” approach to secondary schooling. There is considerable debate currently taking place in the U.S. about whether we have moved too far away from career and technical education, compounding the skills and labor market disadvantage for youth who are ultimately not college bound (i.e., only about 25 percent of high-

school graduates attend a four-year university upon graduation). For example, the Texas Workforce Commissioner stepped forth with employers and other community members to decry the shortage of young people entering skilled trades due to neglect of vocational education at the high school level. Texas subsequently passed legislation in spring 2013 to temper its restrictive, college-preparatory curriculum and make it easier for students interested in career and technical education to take courses that are necessary to get an industry-certified credential by the time of graduation from high school. Although U.S. education policymaking is largely in the purview of state and local educational agencies, Holzer and Edelman (2013) argue that it is important to develop more systemic and comprehensive approaches for youth, so that fewer of them fall off track. WIOA is now placing greater emphasis on work-based learning by requiring the Title I youth program to spend at least 20 percent of the funding on work experience, and CTE stakeholders can participate in the development of state plans to ensure that CTE is incorporated into a state’s vision and goals for increasing workforce skills.¹

At the same time, as effective as these European approaches to labor market preparation for young people appear to be, these systems also still struggle with the least advantaged. As Caliendo et al. (2011) point out, there is a separate preparatory system for German youth with the lowest educational attainment before they have the opportunity to enter an apprenticeship, and it also takes these youth more time to move from subsidized work experience into employment. In the U.S., any discussion of separate “tracks” for K–12 students raises angst about early “segregation” of students that might further limit their opportunities for higher education and skills development. Instead, we have experimented with alternative program approaches to serving our disadvantaged and vulnerable youth, both in school and out of school, many of

¹ See <http://www.nationalskillscoalition.org/resources/publications/file/2015-06-Aligned-by-Design-WIOA-and-CTE.pdf>.

which aim for early targeting to help youth stay engaged and prevent them from dropping out. These programs are very diverse, from the comprehensive Career Academies program described above that includes career and technical education as a core feature, to other programs that emphasize mentoring and individualized attention, afterschool and summer school programming, career guidance and postsecondary education, and more (Heinrich and Holzer 2011; Theodos et al., 2016). Can the U.S. find a balance that shifts our approach closer to being more systemic and formalized, as in the German and other European systems, while preserving flexibility for locally innovative and adaptive strategies for youth while they are still in school?

Targeting youth program resources and keeping youth engaged is undoubtedly easier when these efforts begin while the youth are still in school. As Holzer and Edelman (2013) point out, once youth have “disconnected” both from school and the labor market, they are more likely to give up on “mainstream” institutions and opportunities, and their prospects for entering the labor market will become increasingly poor. We are also gradually coming to terms with the fact that once they are disconnected, there is probably no way that is *both cheap and effective* to re-engage these young people in education, training and the workforce. The Year Up program, for example, asks its corporate sponsors to contribute over \$23,000 to a single student’s program costs, which include an education stipend, tuition for college credits, transportation and other direct and indirect costs of training, job placement and support services.² This amount is comparable to the Job Corps program costs. While Heckman (2008) argues that the most cost-effective way to address the challenges of these youth is to do so before they reach school age (a now widely accepted claim), we are still a long way from having the programs and resources in place to do that for all disadvantaged children (before they enter the school system), and we will

²http://www.yearup.org/partners/main.php?page=federal_partners.

continue to need targeted interventions that address these youth needs at this sensitive period during which they transition to adulthood and their future careers.

Public Sector Role in Seeding and Supporting Innovative Training Strategies

One of the more promising strategies for workforce development identified in recent U.S. program evaluations are those that emerge locally and are targeted to one or more specific sectors of the labor market in arranging education and training opportunities. These sectoral training programs—which aim to advance basic and occupational skills of participants in sectors with expanding labor market opportunities—are intended to respond to the needs of both jobseekers and employers simultaneously (and thereby also reduce labor skills shortages). An experimental evaluation of three sectoral training programs found that participants earned, on average, 18 percent more than controls over a 24-month study period, and 29 percent more during the second half of the period, suggesting that these impacts have the potential to be both substantial and enduring (Maguire et al. 2010).³ The two-year impacts of the more recently implemented WorkAdvance program, which combines a sectoral approach with career advancement strategies, are highly encouraging, likewise showing an 18% increase in earnings over the experimental control group, with significant increases in earnings for the long-term employed as well (Hendra, 2016). Other experimental evaluations of sectoral training programs, such as the Accelerating Connections to Employment (ACE) program, are currently underway (with impact results expected in 2017-2019). Should the U.S. be doing more at state or federal levels to support the expansion or scaling up of successful models of sectoral training?

³The study, funded by the Charles and Stewart Mott Foundation, focused on three well established sectoral training programs: Jewish Vocational Services (Boston), Per Scholas (the Bronx, New York City), and the Wisconsin Regional Training Partnership (Milwaukee).

A report from the National Network of Sector Partners (Mangatt 2010) estimated that they were approximately 1,000 sectoral training partnerships operating in the U.S. several years ago, and about half the states have explored the potential for implementing these strategies. As these collaborations depend on relationships with employers who are willing to combine firm-specific skills training with more general skills training in the context of a public-private partnership, identifying and incentivizing these partnerships is likely to take time and resources. In a number of European countries, sectoral training funds are being used to mobilize resources and encourage public-private sharing of both the costs and responsibilities of providing vocational education and training in promising labor market sectors. These national funds are typically financed by a tax on wages and are explicitly intended to create a “more equal redistribution of training opportunities among underrepresented groups” (European Centre for the Development of Vocational Training 2008, 4). The funds are used to strengthen cooperation between the public and private partners in a number of areas, including the identification of employer skills needs, frameworks for specifying training qualifications and mechanisms for skills recognition and certification, and resource mobilization at the national, local/sectoral and firm levels.

In the U.S., sectoral training strategies first began emerging in the 1980s and 1990s, in a kind of grass-roots response to the needs of key industry groups in varying labor market sectors and the low-skilled individuals looking for work nearby them (King 2013). A number of sectoral training initiatives have been funded by the \$146.9 million Workforce Innovation Fund (WIF), which was announced in June 2012 by the U.S. Secretary of Labor to support innovative service delivery in the public workforce system. The U.S. Department of Health and Human Services (DHHS) is also funding sectoral training program efforts, including through the Health

Profession Opportunity Grants (HPOG) program, which is designed to help low-income individuals acquire the education and training needed to enter occupations in the health care field that are in high demand. Currently, studies of the types of systems change required to implement these programs and interim outcomes of the HPOG program have been released, suggesting promise for sectoral program success (Loprest et al., 2015; Bernstein et al., 2016); results from an impact evaluation of the HPOG program are expected to become available in 2017. Although the U.S. investment in these strategies to date still pales compared to that of its European counterparts—looking at Spain alone, it has spent over \$1 billion in national and regional funds on sectoral training initiatives (with the large majority of these funds coming from the national level) since 1993 (European Centre for the Development of Vocational Training, 2008)—both DHHS and USDOL have now made sectoral training strategies core program priorities and are embarking on “second-generation” efforts to improve sectoral training program models and their implementation..

The U.S. Department of Labor and its federal agency partners such as DHHS are also beginning to expand the type of coordinating and directing efforts that their European counterparts have long undertaken in sectoral training program efforts. The Europeans point to a number of private market failures to account for their greater involvement in these initiatives (European Centre for the Development of Vocational Training, 2008). First, they explain that employers frequently lack adequate information on training returns, and they are prone to worrying about the possibility of poaching or free-riding by other employers of their newly trained workers. This contributes to employers’ inclination to invest only in firm-specific training for their workers, and it is also most likely to be in an area of a high return for the business and/or for employees who are already highly qualified or in leadership roles. In turn,

low-educated or low-skilled adults most in need of education and training may be the least aware of its potential benefits, or may be less able to take advantage of the opportunities in the absence of support services or flexible training arrangements. The policy levers that the European public authorities draw on in their intermediary role to support sectoral training range from legislation and regulation to both financial (e.g., direct subsidies, tax credits and deductions) and non-financial measures to stimulate firm investment in workplace training (e.g., information, advisory and referral services, qualification and certification systems, dissemination of best practices, etc.). In fact, in some countries, public and private entities work together as “social partners” to operate sectoral training funds, into which firms pay a certain percentage of their payroll and from which they can have their own training efforts partially reimbursed. In the United Kingdom (UK), a Sector Skills Development Agency, created in 2002, provides funding, support and monitoring of a network of sector skills councils that covers approximately 85 percent of the workforce.

King (2013) suggests, however, that in the absence of a sizeable increase in funding for sectoral training programs, it is unlikely that the U.S. will be able to take these initiatives to a sufficiently large scale to realize their potential benefits in the coming years. At the same time, WIOA presents new opportunities for the U.S. to substantially strengthen efforts to actively promote sectoral training initiatives and incentivize and support (financially and non-financially) partnerships at both federal and state levels. Section 101 of WIOA describes a number of existing best practices that the ETA would like to see adopted or expanded under the new law, including: career pathways (integrated with adult basic education, English as a second language, and occupational training); industry or sector partnerships convened or implemented by local WIBs, and an increased focus on the attainment of industry-recognized certificates and

credentials linked to in-demand occupations. In light of tight federal resources, one possibility would be to leverage a federal commitment through the AJCs by encouraging (or incentivizing) them to play an elevated coordinating and information dissemination role in support of sectoral partnership-building (akin to the sector skills councils in the UK). While the current political environment is not amenable to the imposition of new payroll taxes, states and localities might explore other ways to redirect existing sources of state and local tax revenues toward support of sectoral training efforts, much in the same way that they convince the public to offer tax breaks to employers who are considering the creation or relocation of firms and jobs.

Public Sector Role in Improving the Evidence Base

In both the U.S. and elsewhere, our knowledge base on what works in workforce development (or active labor market policies) is still limited in terms of its usefulness for informing both public and private decision making about investments in training. For example, considering what type of evidence that employers might look for to convince them to engage in sectoral training programs, King (2013) points out that we still have no evidence (or measures) showing whether these strategies increase worker and firm productivity (either immediately or over time), increase efficiency or lower firm costs over time, or ultimately affect firms' bottom line (i.e., profits). Our evaluations rarely go beyond the worker as the unit of analysis and/or the returns to individuals in relatively narrow terms of their employment and earnings. We have struggled to get even basic data on costs of services for programs that we are currently operating, which makes any type of "bottom-line" calculation difficult, whether for public entities or private investors in training.

In some countries, such as Germany, the Netherlands and other Nordic countries,

comprehensive and generous access to large and informative administrative databases on active labor market policy implementation has allowed researchers in these countries to undertake considerably richer analyses than are typically possible with administrative data from U.S. states or the Department of Labor (Lechner and Wunsch 2009; Smith 2011). This probably goes a long way toward explaining the dominance of these countries in the databases of recent meta-analyses on training effectiveness. Evaluations in the U.S. are more likely to be experimental than in Europe (because of strong political resistance elsewhere to random assignment), yet Smith (2012) argues that we may have become too focused on methods, to the neglect of data quality. Whereas administrative data in Germany and some other countries are made available to researchers cleaned and linked, *if* we can get data from our public training programs in the U.S., it is left to the researchers to identify and clean up errors and other problems. In the nonexperimental WIA evaluation (Heinrich et al. 2008), we were only able to secure cooperation from 12 states to obtain their administrative data, and some could only provide those data for part of the period for which they were requested. In addition, there were numerous inconsistencies from one state to another in how those data were recorded and managed, which ultimately placed the burden on researchers to make assumptions about how they should be used. Smith (2012) adds that it very inefficient for different groups of researchers to be cleaning the same data over and over again, and because states receive federal funds, they should be obliged to provide program data and to also support the linking of those data over time to facilitate longer-term follow up of program outcomes.

And even though random assignment experiments are more likely to be launched in the U.S., we take too long to get them underway. The current WIA experimental evaluation did not get off the ground until approximately a decade after WIA first became operational, and the first

results are only now emerging (after we have transitioned to WIOA). If the U.S. Department of Labor, the states and other public and private partners can work together to coordinate and support more effective evaluation within the country, we might increasingly look in the future to partner or cooperate with others in cross-country, comparative evaluations, which would give us a new window into how alternative organizational, economic and political structures and contexts mediate program effectiveness. Currently, we rely on organizations such as the privately funded, nonprofit Institute for the Study of Labor in Germany (IZA), which provides a valuable service in helping to support exchanges across a network of approximately 1,200 researchers in more than 45 countries and to disseminate study findings that inform a richer, cross-national understanding of active labor market policy implementation and program impacts. There are numerous, currently pressing issues that would benefit from more cross-national collaboration—such as the need to address declining rates of labor force participation among working-age adults, the limited success of training efforts with dislocated workers, and the relationship between training and job quality, among others—in addition to more concerted efforts to build the evidence base around them.

In Europe, the Public Employment Service (PES) is ramping up efforts to promote cross-national learning and collaboration through a process described as “benchlearning.” Benchlearning aims to facilitate indicator-based performance comparisons that support mutual learning and the identification of best practices for improving program efficiency and effectiveness. A PES-network taskforce has been designated to further develop the concept of benchlearning and the methods and processes of its implementation. In March 2015, a shared definition of benchlearning was established, and work is ongoing on the details of its implementation, with ultimate goal to support evidence-based, mutual learning across the PES in

Europe (European Network of Public Employment Services, 2015). Given that the USDOL and DHHS are similarly pursuing strategies to promote evidence-based policymaking and could potentially benefit from mutual learning opportunities with developed country peers, they might consider working with the European PES Network to expand benchlearning to other countries. The earlier the U.S. engages, the more likely it could have some influence in setting the performance benchmarks by which these international comparisons of program performance will be made.

It is also worth noting that the new WIOA program mandates implementation of new “Pay for Success” efforts, with the objective to incentivize and develop new public-private partnerships to address some of the most difficult programmatic challenges through the use of payment structures that provide funds only to programs that achieve pre-determined outcomes. The intent is to only expend tax payer dollars if the programs are getting measurable results, as specified in the contracts between government and a service provider (or provider coalition). To facilitate implementation of this new approach to performance-based contracting, WIOA creates a permanent authority within the three formula funding streams (Adult, Youth, and Dislocated Workers) to establish Pay for Performance as an eligible use of WIOA funds. Local workforce boards can devote up to 10 percent of funding across all three formula funding streams for Pay for Performance programming. States can also use their WIOA funds to provide technical assistance to help local workforce areas implement Pay for Performance strategies. This will be an important new provision of WIOA to watch, as to date, there is limited evidence of the success of “Pay for Success” strategies themselves. In fact, this could also be an important area for benchlearning, given that the United Kingdom is a few steps ahead in implementing Pay for Success initiatives and has already established a “Pay for Success Learning Hub”

(<http://www.payforsuccess.org/networks>).

Finally, the National Association of State Workforce Agencies and other stakeholders of the U.S. workforce system—who have been studying the WIOA legislation, reviewing the details and new provisions section by section, and anticipating challenges in its implementation—have urged the Secretary of Labor and the USDOL’s federal program partners to ensure that workforce system partners (and the research community) have flexibility and opportunities through state options, waivers, pilot demonstrations, and other means to learn from state and local innovations and improve on the system design as WIOA is rolled out. They have also asked the USDOL to continue to facilitate the development of evidence and the translation of evidence into policy by writing policy into *guidance documents* rather than relying on more formal regulations, allowing for modifications to the guidance as new knowledge is gained in the work of state and local agencies with their system partners. In effect, flexibility is needed and will be highly valued as federal, state and local agencies and system partners work to identify the best approaches to and measure(s) of effectiveness in serving workers and employers and ensuring continuous performance improvement and increased program and labor market success in the new WIOA program.

References

- Acemoglu, Daron and David Autor. 2012. What Does Human Capital Do? A Review of Goldin and Katz' Book *The Race Between Education and Technology*." *Journal of Economic Literature*, 50(2), 426–63.
- Andersson, Fredrik, Harry J. Holzer, Julia I. Lane, David B. Rosenblum, and Jeffrey Smith. 2012. Does Federally-Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms. Working paper.
- Arum, Richard and Josipa Roska. 2011. *Academically Adrift: Limited Learning on College Campuses*. Chicago: University Of Chicago Press.
- Auer, Peter, Umit Efendioglu, and Janine Leschke (2008). *Active labour market policies around the world: Coping with the consequences of globalization*, Geneva: International Labour Office, Second Edition.
- Autor, David H., and Michael J. Handel. 2009. "Putting Tasks to the Test: Human Capital, Job Tasks and Wages." NBER Working Paper No. 15116. Cambridge, MA: National Bureau of Economic Research.
- Barnett, W.S. (1996). *Lives in the Balance: Age 27 Benefit–Cost Analysis of the High Scope Perry Preschool Program*. High/Scope Press, Ypsilanti, MI.
- Barrett, Alan and Philip J. O'Connell. 2001. Does Training Generally Work? The Returns to In-Company Training. *Industrial and Labor Relations Review* 54 (3): 647–662.
- Bassanini, Andrea, Alison Booth, Giorgio Brunello, Maria De Paola and Edwin Leuven. 2007. Workplace Training in Europe. Chapter 8-13 in: Brunello, Garibaldi and Wasmer (eds.), *Education and Training in Europe*, Oxford University Press.
- Becker, Gary S. (1964, 1993, 3rd ed.). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, Chicago: The University of Chicago Press.
- Belfield, C.R., Nores, M., Barnett, W.S., Schweinhart, L. (2006). The High/Scope Perry Preschool Program: cost–benefit analysis using data from the age-40 follow-up. *Journal of Human Resources* 41 (1), 162–190.
- Bernstein, Hamutal, Lauren Eyster, Jennifer Yahner, Stephanie Owen, and Pamela Loprest. 2016. Systems Change under the Health Profession Opportunity Grants (HPOG) Program (OPRE Report # 2016-50). Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- Besharov, Douglas J. and Douglas M. Call. 2011. Labour Activation in a Time of High Unemployment Key Developments in the OECD. Working paper.
- Biavaschi, Costanza, Werner Eichhorst, Corrado Giulietti, Michael J. Kendzia, Alexander Muravyev, Janneke Pieters, Nuría Rodríguez-Planas, Ricarda Schmidl and Klaus F. Zimmermann. 2013. *Foundations and Trends in Microeconomics*, 9 (1-2), 1-157.
- Blakemore, S. J., 2010. The developing social brain: implications for education. *Neuron* 65 (6), 744–747.
- Bloom, Dan. 2009. Out-of-school youth and the transition to adulthood. Working paper, MDRC, New York.
- Bloom, Howard, Larry Orr, George Cave, Steve Bell and Fred Doolittle. (2003). *The National JTPA Study: Title IIA Impacts on Earnings and Employment at 18 Months*. Bethesda, MD: Abt Associates.

- Bowles, Anne, and Betsy Brand. 2009. *Learning around the clock: Benefits of expanded learning opportunities for older youth*. Washington, DC: American Youth Policy Forum.
- Brunello, Giorgio, Pietro Garibaldi and Etienne Wasmer (eds.) 2007. *Education and Training in Europe*.
- Caliendo, Marco, Steffen Künn, and Ricarda Schmidl. 2011. Fighting Youth Unemployment: The Effects of Active Labor Market Policies, IZA Discussion Paper 6222.
- Card, David, Jochen Kluge, and Andrea Weber. 2010. "Active Labor Market Policy Evaluations: A Meta-Analysis." *The Economic Journal*, 120, F452-F477.
- Carneiro, Pedro and James J. Heckman (2005). "Human Capital Policy," In Benjamin M. Friedman, Ed., *Inequality in America: What Role for Human Capital Policies?* Cambridge, Massachusetts: The MIT Press, pp. 77–239.
- Center for Education Policy. 2012. Student Motivation: An Overlooked Piece of School Reform. Washington, DC: Center for Education Policy.
- Chase-Lansdale, P. Lindsay and Brooks-Gunn, Jeanne. 2013. Two-Generation Programs in the 21st Century. Working paper, prepared for *The Future of Children*.
- Chertavian, Gerald. 2012. *A Year Up: How a Pioneering Program Teaches Young Adults Real Skills for Real Jobs-With Real Success*. London: Viking Penguin.
- Civic Impulse. 2016. H.R. 803 — 113th Congress: Workforce Innovation and Opportunity Act. Retrieved from <https://www.govtrack.us/congress/bills/113/hr803>.
- Cunha, Flavio and James J. Heckman. 2006. Investing in our Young People. Working paper, University of Chicago.
- Decker, Paul. 2011. Ten Years of WIA Research. In *The Workforce Investment Act: Implementation Experiences and Evaluation Findings*, edited by D. Besharov and P. Cottingham. Kalamazoo, Michigan: W.E. Upjohn Institute, 2011.
- Dougherty, Conor. 2011. Young Men Suffer Worst As Economy Staggers. *The Wall Street Journal*, November 7.
- Dyke, Andrew, Carolyn Heinrich, Peter R. Mueser, Kenneth R. Troske, and Kyung-Seong Jeon. 2006. "The Effects of Welfare-to-Work Program Activities on Labor Market Outcomes." *Journal of Labor Economics* 24:3 (July), 567–608.
- Edelman, Peter B. and Harry J. Holzer. 2013. Connecting the Disconnected: Improving Education and Employment Outcomes among Disadvantaged Youth. Institute for Research on Poverty Discussion Paper No. 1412–13.
- Eichhorst, Werner, Núria Rodríguez-Planas, Ricarda Schmidl, and Klaus F. Zimmermann. 2015. A Roadmap to Vocational Education and Training Systems Around the World. *Industrial and Labor Relations Review*, 68 (2), 314-337.
- Enayati, Amanda. 2012. The aging brain: Why getting older just might be awesome. Special to CNN, June 19, 2012. <http://www.cnn.com/2012/06/19/health/enayati-aging-brain-innovation>.
- European Centre for the Development of Vocational Training. 2008. Sectoral Training Funds in Europe. Cedefop Panorama series; 156. Luxembourg: Office for Official Publications of the European Communities.
- European Network of Public Employment Services. 2015. Benchlearning. http://www.pesboard.eu/EN/pesboard/Benchlearning/benchlearning_node.html.
- Fares, Jean and Olga Susana Puerto. 2009. Towards Comprehensive Training. The World Bank Social Protection and Labor Discussion Paper No. 0924.

- Field, Kelly. 2011. President's Budget Protects Pell Grants, but Makes Deep Cuts to Career and Technical Education. *The Chronicle of Higher Education*, February 14.
- Fouarge, Didier, Trudie Schils and Andries de Grip. 2013. Why Do Low-Educated Workers Invest Less in Further Training? *Applied Economics*, 45 (18), 2587-2601.
- Garces, E., Thomas, D., Currie, J. (2002). Longer-term effects of Head Start. *American Economic Review* 92 (4), 999–1012 September.
- Gersbach, and Armin Schmutzler. 2006. The Effects of Globalization on Worker Training. IZA Discussion Paper No. 2403.
- Goldin, Claudia, and Lawrence F. Katz. 2008. *The Race Between Education and Technology*. Cambridge, MA: Harvard University Press.
- Greenberg, David H., Charles Michalopoulos, and Philip K. Robins. 2006. Do Experimental and Nonexperimental Evaluations Give Different Answers about the Effectiveness of Government-funded Training Programs? *Journal of Policy Analysis and Management*, Vol. 25, No. 3 (Summer), pp. 523–552.
- Greenberg, David H., Andreas Cebulla and Stacey Bouchet. 2005. Report on a Meta-Analysis of Welfare-to-Work Programs. Institute for Research on Poverty Discussion Paper no.1312-05
- Greenberg, David H., Charles Michalopoulos, and Philip K. Robins. 2003. A meta-analysis of government-sponsored training. *Industrial and Labor Relations Review* 57(1): 31–53.
- Grogger, Jeffrey and Lynn A. Karoly. 2005. *Welfare Reform: Effects of a Decade of Change*. Cambridge: Harvard University Press, 2005.
- Haelermans, Carla and Lex Borghans. 2012. Wage Effects of On-the-Job Training: A Meta-Analysis. *British Journal of Industrial Relations*, 50 (3), 502–528).
- Haskins, Ron, Harry Holzer, and Robert Lerman. 2009. “Promoting Economic Mobility by Increasing Postsecondary Education.” Washington, DC: Economic Mobility Project Pew Charitable Trusts.
- Heckman, James J. 2000. Policies to foster human capital. *Research in Economics* 54(1), 3–56.
- Heckman, James J. 2005. Inequality in America: What Role for Human Capital Policies? *Focus* 23(3): pp. 1–10.
- Heckman, James J. 2008. The Case for Investing in Disadvantaged Young Children. In *Big Ideas for Children: Investing in our Nation’s Future*. First Focus, pp. 49–58.
- Heckman, James J., Moon, Seong Hyeok, Pinto, Rodrigo, Savelyev, Peter A., and Adam Yavitz. 2010. “Analyzing social experiments as implemented: A reexamination of the evidence from the High Scope Perry Preschool Program.” *Quantitative Economics*, 1(1):1–46.
- Heckman, James J. , Robert J. Lalonde and Jeffrey A. Smith. “The Economics and Econometrics of Active Labor Market Programs.” In Orley Ashenfelter and David Card, editors, *Handbook of Labor Economics*, Volume 3A. Amsterdam and New York: Elsevier, 1999: 1865–2095.
- Heinrich, Carolyn, J. and Harry J. Holzer. 2011. “Improving Education and Employment for Disadvantaged Young Men: Proven and Promising Strategies.” *The Annals of The American Academy of Political and Social Science*, Volume 635 (May): 163–191.
- Heinrich, Carolyn .J., Mueser, Peter and Kenneth R. Troske. 2008. *Workforce Investment Act Non-Experimental Net Impact Evaluation*. Final Report to U.S. Department of Labor, December.

- Hendra, Richard. 2016. Impacts of WorkAdvance, an Evidence-based Sectoral Training and Career Pathways Program. Presented at the Research and Evaluation Conference on Self-Sufficiency, June 3, Washington, DC.
- Hendra, Richard, Kathryn Ray, Sandra Vegeris, Debra Hevenstone and Maria Hudson. 2011. Employment Retention and Advancement (ERA) demonstration: Delivery, take-up, and outcomes of in-work training support for lone parents. Department for Work and Pensions Research Report No. 727, United Kingdom
- Hollenbeck, Kevin and Wei-Jang Huang. 2006. *Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State*, Kalamazoo, Michigan: W. E. Upjohn Institute for Employment Research, Technical Report No. TR06-020.
- Hollenbeck, Kevin, Daniel G. Schroeder, Christopher T. King, and Wei-Jang Huang. 2005. *Net Impact Estimates for Services Provided through the Workforce Investment Act*, Baltimore: The Jacob France Center, ADARE Project, University of Baltimore, October. Unpublished report prepared for USDOL/ETA.
- Holzer, Harry J., Julia I. Lane, David B. Rosenblum, and Fredrik Andersson. 2011. *Where Are All the Good Jobs Going? What National and Local Job Quality and Dynamics Mean for U.S. Workers*. New York: Russell Sage Foundation.
- Holzer, Harry J. 2013. Good Workers for Good Jobs: Improving Education and Workforce Systems in the US. Institute for Research on Poverty Discussion Paper No. 1404-13. (Published online in the *IZA Journal of Labor Policy*, 1:5, <http://link.springer.com/article/10.1186/2193-9004-1-5>).
- Hotz, V. Joseph, Guido W. Imbens and Jacob A. Klerman. 2006. Evaluating the Differential Effects of Alternative Welfare-to-Work Training Components: A Reanalysis of the California GAIN Program. *Journal of Labor Economics* 24 (July), 521–566.
- Howard-Jones, P.A., E.V. Washbrook, and S. Meadows. 2012. The Timing of Educational Investment: A Neuroscientific Perspective. *Developmental Cognitive Neuroscience* 2S: S18– S29.2012
- Huber, Martin, Michael Lechner, Conny Wunsch and Thomas Walter. 2011. Do German Welfare-to-Work Programmes Reduce Welfare Dependency and Increase Employment? *German Economic Review*, 12 (2), 182-204.
- Huston AC, Duncan GJ, Granger R, Bos J, McLoyd V, Mistry R, Crosby D, Gibson C, Magnuson K, Romich J, Ventura A. Child Dev. 2001. Work-based antipoverty programs for parents can enhance the school performance and social behavior of children. Jan-Feb;72(1):318–36.
- Johnson, Mark H. 2005. *Developmental Cognitive Neuroscience: An Introduction*. 2nd edition, Oxford: Blackwell.
- Johnson, Sandra and Kathleen Taylor (editors). 2006. *The Neuroscience of Adult Learning: New Directions for Adult and Continuing Education*. Jossey-Bass.
- Kelly, Patrick J. 2010. Closing the College Attainment Gap between the U.S. and Most Educated Countries, and the Contributions to be made by the States. National Center for Higher Education Management Systems (NCHEMS).
- Kemple, James, with Cynthia Willner. 2008. *Career Academies: Long-Term Impacts on Labor Market Outcomes, Educational Attainment, and Transitions to Adulthood*. New York: MDRC.
- Kerwin and Stephens, Charles and Melvin Stephens, Jr. 2004. Job Displacement, Disability, and Divorce. *Journal of Labor Economics* 22, no. 2: 489–522.

- King, Christopher T. 2013. Sectoral Workforce and Related Strategies: What We Know... and What We Need to Know. Working paper, Ray Marshall Center, LBJ School of Public Affairs, University of Texas at Austin.
- King, Christopher T., Tara C. Smith and Robert W. Glover. 2011. Investing in Children and Parents: Fostering Dual-Generation Strategies in the United States. Working paper, Ray Marshall Center, LBJ School of Public Affairs, The University of Texas at Austin.
- King, Christopher T. and Carolyn, J. Heinrich. 2011. "How Effective are Workforce Development Programs?" Working Paper, University of Texas at Austin.
- Knudsen, Eric I., James J. Heckman, Judy L. Cameron, and Jack P. Shonkoff. 2006. Economic, neurobiological, and behavioral perspectives on building America's future workforce. *Proceedings of the National Academy of Sciences* 103(27): 10155–10162.
- LaLonde, Robert and Daniel Sullivan. 2010. Retraining Displaced Workers. The Hamilton Project Policy Brief, The Brookings Institution, October.
- Lechner, Michael and Conny Wunsch. 2009. Active Labor Market Policy in East Germany: Waiting for the Economy to Take Off. *Economics of Transition*, 17 (4), 661-702.
- Lechner, Michael and Blaise Melly. 2007. Earnings Effects of Training Programs. IZA Discussion Paper No. 2926
- Leonard, J.S. 2000. Comments on James Heckman's Policies to Foster Human Capital. *Research in Economics* 54 (1), 61–64.
- Lerman, Robert I. 2016. Restoring Opportunity by Expanding Apprenticeship. Ch. 10 in *The Dynamics of Opportunity in America*, Irwin Kirsch and Henry Braun (eds), Springer International Publishing, pp 359-385.
- Lerman, Robert I. 2013. Employer-Led Training in the United States. Working paper.
- Lerman, Robert I., Signe-Mary McKernan, and Stephanie Riegg. 2004. "The Scope of Employer-Provided Training in the United States," In Christopher J. O'Leary, Robert A. Straits, and Stephen A. Wandner, Eds., *Job Training Policy in the United States*, Kalamazoo, Michigan: W.E. Upjohn Institute for Employment Research, pp. 211–243.
- Livingston, Gretchen and D'Vera Cohn. 2012. U.S. Birth Rate Falls to a Record Low; Decline Is Greatest Among Immigrants. November 29.
- Loprest, Pamela, Julie Strawn, and Elizabeth Giardino. 2015. Health Profession Opportunity Grants: Summary of Interim Outcomes, OPRE Report # 2015-68. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- Lynch, Lisa M. 1992. Private-Sector Training and the Earnings of Young Workers. *The American Economic Review*, Vol. 82, No. 1: 299–312.
- Maestas, Nicole and Julie Zissimopoulos. 2010. How Longer Work Lives Ease the Crunch of Population Aging. *Journal of Economic Perspectives* 24(1): 139–160.
- Magnuson, Katherine. 2007. *Investing in the Adult Workforce: An Opportunity to Improve Children's Life Chances*, prepared for the Annie E. Casey Foundation Initiative on Investing in Workforce Development, March
<http://www.aecf.org/news/fes/dec2008/pdf/Magnuson.pdf>.
- Maguire, Sheila, Joshua Freely, Carol Clymer, Maureen Conway and Deena Schwartz. 2010. *Tuning In to Local Labor Markets: Findings from the Sectoral Employment Impact Study*, Philadelphia: Public/Private Ventures.
- Mangatt, Ravinder. 2010. *Sector Snapshot: A Profile of Sector Initiatives*. Oakland, CA:

- National Network of Sector Partnerships, Insight Center for Community Economic Development. <http://www.insightcced.org/uploads/publications/wd/Sector---Snapshots.pdf>.
- Manno, Michelle S., Edith Yang and Michael Bangser. 2015. Engaging Disconnected Young People in Education and Work: Findings from the Project Rise Implementation Evaluation. MDRC, October.
- Martin, John P. 2014. Activation and Active Labour Market Policies in OECD Countries: Stylized Facts and Evidence on their Effectiveness. IZA Discussion Paper No. 84, June.
- Martin, John P. 2000. "What Works Among Active Labour Market Policies: Evidence from OECD Countries' Experiences." *OECD Economic Studies* No. 30.
- Mincer, Jacob. 1974. Schooling, Experience, and Earnings. New York: Columbia University Press.
- Oreopolous, Phillip, Marianne Page, and Ann Huff Stevens. 2008. The Intergenerational Effects of Worker Displacement. *Journal of Labor Economics* 26, no. 3 (2008): 455–483.
- Osterman, Paul (2007). "Employment and Training Policies: New Directions for Less-Skilled Adults," In Harry J. Holzer and Demetra Smith Nightingale, Eds., *Reshaping the American Workforce in a Changing Economy*, Washington, D.C.: The Urban Institute Press, pp. 119–154.
- Rege, Mari, Kjetil Telle and Mark Votruba. 2011. Parental Job Loss and Children's School Performance," *Review of Economic Studies* 78: 1462–1489.
- Research and Evaluation Conference on Self-Sufficiency. 2016. Connecting Young People to Employment: Promising New Evidence, June 2, Washington, DC.
- Rzepka, Sylvi and Marcus Tamm. 2016. Local Employer Competition and Training of Workers. *Applied Economics*, 48 (35), 3307-3321.
- Rinne, Ulf, Marc Schneider and Arne Uhlendorff. 2011. Do the skilled and prime-aged unemployed benefit more from training? Effect heterogeneity of public training programmes in Germany. *Applied Economics*, 2011, 43 (25), 3465–3494.
- Rivera, Ray J. and Andrew Paradise (2006). 2006 State of the Industry in Leading Enterprises: ASTD's Annual Review of Trends in Workplace Learning and Performance, Alexandria, VA: American Society for Training and Development.
- Rolnick, A., Grunewald, R., 2003. Early Childhood Development: Economic Development with a High Public Return. Tech. Rep. Federal Reserve Bank of Minneapolis, Minneapolis, MN.
- Rosenbaum, James E., Regina Deil-Amen and Ann E. Person. 2006. *After Admission: From College Access to College Success*. New York: Russell Sage Foundation.
- Ruhm, Christopher J. 1991. Are Workers Permanently Scarred by Job Displacements? *American Economic Review* 81, no. 1: 319–324.
- Rumberger, Russell W. 2011. *Dropping Out: Why Students Drop Out of High School and What Can be Done About It*. Cambridge: Harvard University Press.
- Sala, Hector and José I. Silva. 2013. Labor Productivity and Vocational Training: Evidence from Europe. *Journal of Productivity Analysis*, 40 (1), 31-41.
- Schneider, Mark and Lu Michelle Yin. 2012. Completion matters: the high cost of low community college graduation rates. American Enterprise Institute, April 03, 2012. Downloaded at: <http://www.aei.org/outlook/education/higher-education/community-colleges/completion-matters-the-high-cost-of-community-college-graduation-rates/>.

- Schochet, Peter, John Burghardt, and Sheena McConnell. 2006. *National Job Corps Study and Longer-Term Follow-Up Study: Impact and Benefit-Cost Findings Using Survey and Summary Earnings Records Data, Final Report*. Washington, DC: Mathematica Policy Research.
- Shonkoff, Jack P., Andrew S. Garner, Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. 2012. Technical Report: The Lifelong Effects of Early Childhood Adversity and Toxic Stress, *Pediatrics* 129, no. 1: e232–46.
- Smith, Jeffrey. 2012. World Class Active Labor Market Programs: Necessary Conditions. Presentation at “Getting America Back to Work: Can Training Programs Do the Job?” American Enterprise Institute, September 7.
- Smith, Jeffrey. 2011. What Can the ESF Learn from US Evaluations of Active Labor Market Programs? Working paper, University of Michigan.
- Social Policy Research Associates. 2016. Lessons Learned from Examining the Services Provided by the WIA Adult and Dislocated Workers Programs. Presented at the Research and Evaluation Conference on Self-Sufficiency, June 3, Washington, DC.
- Social Policy Research Associates. 2013. The Evaluation of the Trade Adjustment Assistance Program: A Synthesis of Major Findings. Report downloaded from: <http://www.spra.com/admin/PDFFile/taa%20synthesis%20report%20-%20revised%202013-1-9.pdf>.
- Stevens, Ann Huff and Schaller, Jessamyn. 2011. Short-run effects of parental job loss on children's academic achievement. *Economics of Education Review* 30, no. 2: 289–299.
- Taylor, Kathleen, Catherine Marienau and Morris Fiddler. 2000. *Developing Adult Learners: Strategies for Teachers and Trainers*. Jossey-Bass.
- Theodos, Brett, Michael R. Pergamit, Alexandra Derian, Sara Edelstein and Allison Stolte. 2016. *Solutions for Youth: An Evaluation of the Latin American Youth Center’s Promotor Pathway Program*. Final Report, The Urban Institute, April.
- Toossi, Mitra, "Projections of the labor force to 2050: a visual essay," *Monthly Labor Review*, October 2012.
- U.S. Government Accountability Office. 1993. *Dislocated Workers: Trade Adjustment Assistance Flawed*. GAO/T-HRD-94-4.

Table 1: Summary of findings from evidence base on workforce development program/active labor market policy effectiveness

Study	Sample/methods	Outcomes by different types of programs and/or country	Other findings and limitations
<p>Andersson, Holzer, Lane, Rosenblum and Smith, 2012, Does Federally Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms</p>	<p>Data on Workforce Investment Act (WIA) participants (WIASRD data) are linked to data on workers, employers and employment outcomes from the Longitudinal Employer Household Dynamics (LEHD) program for two states; workers who received training are matched to workers who only received other (core or intensive) services at One-Stop Centers and inverse propensity score weighting is used to estimate impacts; Objective to measure a wider range of impacts on worker outcomes with richer controls</p>	<p>Earnings differentials tend to be negative during first several quarters after WIA registration for training recipients; earnings impacts become positive around the 6th quarter and grow larger over the next several quarters, peaking at approximately \$400-500 per quarter; estimated annual impacts for adults are \$1250-1700; results are less favorable for dislocated workers (peak lower in one state and do not turn positive over 12 quarters in the other state) Training appears to increase the probability of switching industries over time and is associated with some measures of firm quality (i.e., may help workers gain employment in higher-paying firms and industries) Estimated impacts do not differ by gender</p>	<p>Authors suggest that their findings imply that job training efforts should consider the jobs and firms for which workers are being trained (e.g., akin to sectoral approaches) if we are to increase the effectiveness of training</p>
<p>Bassanini et al., 2007, Education and Training in Europe,</p>	<p>Use large cross-country datasets available for OECD countries to examine education and training in Europe, theoretically and empirically: i) OECD aggregate training data; ii) Continuing Vocational Training Survey (CVTS); iii) International Adult Literacy Survey (IALS); and iv) European Community Household Panel (ECHP)</p>	<p>Scandinavian countries, France and New Zealand identified as the most training intensive countries (participation rates above 45%, more than 30 hours per employee); US participation rates estimated at 41.4% and 17.9 hours per employee; 80% of vocational training courses paid for or provided by employers, yet there are few studies on the impact of training on productivity (due to lack of data on productivity); rates of return estimates are even scarcer because data on cost are even more difficult to find than data on output It is difficult to make a strong case for under-provision of workplace training; more research and information needed on externalities and costs, and more methodological checks on existing estimates</p>	<p>Documenting cross-country variation in training is difficult due to idiosyncratic definitions of training in different surveys and country data</p>

Study	Sample/methods	Outcomes by different types of programs and/or country	Other findings and limitations
<p>Caliendo, Kunn & Schmidl, 2011, Fighting Youth Unemployment: The Effects of Active Labor Market Policies</p>	<p>German active labor market policies for youth; administrative data for youth (age 25 or younger) entering unemployment in 2002 (n=51,019) and followed until 2008; quasi-experimental methods applying inverse probability weighting to 7 programs: job search & assessment, short-term training (max=8 weeks), wage subsidies for regular employment, job creation, long-term training (max=approx 1 year), preparatory training (max=1 year)</p>	<p>Main outcome: probability of being in regular employment; also look at participation in higher education Except for job creation and preparatory training, programs improve probability of regular employment—initial lock-in phase, with impacts stabilizing at around 2 years after entry; 5 to 20 percentage point increase in monthly employment from third year on (varying by program & region); wage subsidies to regular employment most effective (20 percentage point impact); long-term training impacts around 10 percentage points (severe lock-in effects); job creation consistently negative effects Probability to participate in unsubsidized education: positive increase in education probabilities of about 10 percentage points through longer-term training, and professional qualifications increase by 20%; preparatory programs do prepare youth for entering apprenticeships; no effects for employment programs</p>	<p>Dual apprenticeship program accounts for half of all vocational training entries each year (in secondary schooling); preparatory system for low education attainment youths; low-education youth most vulnerable—need more time to turn subsidized work experience into employment; by sample design, majority in job search or short-term training</p>
<p>Card, Kluve & Weber, 2010, Active Labor Market Policy Evaluations: A Meta-analysis”</p>	<p>Meta-analysis of 97 studies (199 estimates) from 26 countries, 1995 and 2007; classified impact estimates as significantly positive, significantly negative, or insignificantly different from zero; ordered probit regression with controls for program type and sample and study characteristics to estimate effects on employment, wages, unemployment duration, future unemployment</p>	<p>Subsidized public sector programs have least favorable outcomes; job search assistance has positive shorter-term impacts; classroom training more positive over medium-term (short-term impact estimates– measuring effects approximately one year after program completion – and medium-term for approximately 2 years after completion available for about ½ the sample; longer-term 3-year impacts for ¼ of sample); more favorable distribution of outcomes (% significantly positive) over the longer-term; country differences are small after controlling for program type No differential effects for men vs. women Median short-term effect size for probability of employment (when available)=.21; median medium-term effect size on probability of employment=.29</p>	<p>70% of impact estimates from programs targeting the registered unemployed; in Anglo countries, 15% are from unemployment insurance recipients; cost-benefit analysis or calculation of social returns not feasible</p>

Study	Sample/methods	Outcomes by different types of programs and/or country	Other findings and limitations
Decker, 2011, "Ten Years of WIA Research"	Review of studies on the implementation and impacts of Workforce Investment Act (WIA) programs, as well as pre- and post-1995 evidence (MDTA, CETA & JTPA)	<p>JTPA: 15% earnings increase for women, 8% increase for men, and net benefits per enrollee of \$763/quarter for women & \$781/quarter for men; OJT/JSA impacts higher for women and larger long-run earnings effects (over \$5,000 on average for women & men)</p> <p>WIA: larger estimated effects than JTPA on earnings; Heinrich et al. (2008) estimates of \$320-692 per quarter for 4 years <i>after program entry</i> and higher employment (5-13% per quarter); Hollenbeck et al. (2005) earnings impacts higher <i>starting at program exit</i> (\$773-887 per quarter over 8 quarters) and employment effects of 10.6% for women & 6.2% for men); impacts of training increase over time</p> <p>JSA effects more immediate but short-lived</p> <p>Trade adjustment assistance and dislocated worker programs: a number of studies find small and/or statistically insignificant effects; differing estimation approaches suggest forgone earnings costs are high during program participation</p>	JTPA evaluation was experimental but WIA evaluations were nonexperimental; potential for selection bias remains a concern with program impact estimates; study samples are not nationally representative
Fares & Puerto, 2009 "Towards Comprehensive Training"	Meta-analysis framework to review findings from 345 studies of training programs in 90 countries (controls for country characteristics), distinguishing in-classroom training (37% of studies), workplace training (15%), classroom+workplace (19%), classroom+workplace+supplemental services (29%); 61% were publicly financed training programs	<p>41% of 345 interventions found to have positive effects; 18% negative or no effects; 34% insufficient evidence; only 16 studies include cost-benefit analyses</p> <p>Interaction of in-classroom + workplace training increases positive impacts</p> <p>Youth programs in LAC effective in increasing employment (by 5-21%) and earnings (by 10-35%), although overall, impacts of programs targeting youth have significantly lower impacts (30% lower) than those for adults</p> <p>Training programs more effective in low- and low-middle income countries</p>	Report increasing convergence toward comprehensive active labor market programs; better evidence was not generated until early 1990s (63% of studies in sample 1990 or later); little discussion of outcomes

Study	Sample/methods	Outcomes by different types of programs and/or country	Other findings and limitations
Greenberg, Cebulla & Bouchet, 2005 “Report on a Meta-Analysis of Welfare-to-Work Programs”	Data from 31 random assignment evaluations of welfare-to-work programs (27 mandatory, 4 voluntary); measures of impacts on earnings, % in employment, welfare received & % receiving welfare (up to 20 quarters after random assignment)	Mandatory programs: job search more effective; impacts positive for 5-7 years but declining in magnitude after 2-3 years; more effective for less advantaged (without recent employment and longer-term welfare receipt); net benefits are small (societal net benefits of about \$500 and \$400 in govt savings per treatment member) For voluntary programs, more expensive programs produce larger impacts Program participants earn about 10% more than the control group, but the effect fades (as does the employment effect); welfare receipt is reduced Labor market controls suggests programs are more effective when demand for labor is greater	Sample is from welfare-to-work programs and includes over 90% single parent families; study also examined child outcomes (emotional & behavioral)—small, mixed effects found
Haelermans & Borghans, 2012, Wage Effects of On-the-Job Training: A Meta-Analysis	Meta-analysis based on 71 estimates of returns to on-the-job training from 38 studies published between 1981 and 2010; only studies that computed the effect of on-the-job training on wages were included	Main finding: average wage effect of on-the-job training is 2.6%, which is larger than the average return to education (reported by Ashenfelter et al., 1999); using estimation techniques that correct for selectivity bias, the age until which an average training course is profitable is 55 years; Substantial heterogeneity in wage effects of training courses is also found Comparing the average number of hours spent on on-the-job training with the average number of hours spent on schooling gives a wage increase of 30% for on-the-job training, compared with 8% for the return to schooling	Too few studies measure the duration of training, so the authors measured training as a dummy variable; methodology and data quality play a major role in determining the return to on-the-job training

Study	Sample/methods	Outcomes by different types of programs and/or country	Other findings and limitations
Heinrich, Mueser and Troske, 2008, Workforce Investment Act Non-experimental Net Impact Evaluation (with IMPAQ International)	Administrative data from 12 states used with propensity score matching methods to evaluate program effects on average earnings and employment for ~160,000 WIA participants up to four years following program entry in the period July 2003-June 2005 (Adult and Dislocated Worker programs); comparison group members drawn from those who filed Unemployment Insurance benefit claims or who participated in U.S. Employment Service program	In almost all states, Adult program impacts are positive—earnings benefits are smaller in the first 4-6 quarters than after 2-3 years; average increment in earnings for women is nearly \$2400 per year, about 26% of average earnings, and for men it is nearly \$1700, about 15% of average earnings; program participation increases employment in a given quarter for women by about 7 percentage points, and for men by about 6 percentage points Increments in annual earnings for dislocated workers are much smaller than for the Adult program, just over \$500 for women and less than \$150 for men (less than 3 percent of average earnings); employment increases are greater at 4-5 percentage point increments (a 7-8% increase in employment proportions) Adult program benefits estimated to exceed costs for men and women if earnings impacts continue for 2-3 years	Costs incurred in the WIA program were not available; using available data from published sources, average per capita direct expenditures were estimated to be in the range of \$2400-\$2700, with higher costs for Dislocated Workers (\$2800-\$3200)
Hendra, Ray, Vegeris, Hevenstone & Hudson, 2011, Employment Retention and Advancement (ERA) demonstration: Delivery, take-up, and outcomes of in-work training support for lone parents	Employment Retention and Advancement program designed to encourage human capital development; personal adviser and financial support for training among low-wage workers and financial incentives (bonuses) for completing training and working full time; targeted lone parents and long-term unemployed in UK Randomized controlled trial with outcomes measured 12 months and 24 months after random assignment; sample sizes of approx. 2,293 and 1,248	Examined course-taking (types) and the completion of qualifications or credentials; ERA increased the likelihood of course-taking and the probability of combining work and training, but there is no evidence yet of an effect of this increased training on qualifications; it also did not affect total time spent in training, but it did increase enrollment in courses relevant to specific occupations Outcomes from training were only analyzed qualitatively in this report; 5-year impact evaluation findings were expected in 2011, but no publication is evident yet	Data suggest that not all of the training was motivated by the ERA financial incentives

Study	Sample/methods	Outcomes by different types of programs and/or country	Other findings and limitations
<p>Schochet, Burghardt and McConnell, 2006, National Job Corps Study and Longer-term Follow-up Study</p>	<p>Random assignment experimental study of eligible applicants from 1994-96, using four years of follow-up survey data and 10 years of administrative data Key questions: Does Job Corps increase educational attainment and literacy, reduce criminal behavior and the receipt of welfare benefits, and improve postprogram employment and earnings? Do impacts differ by subgroups and center characteristics? Do program benefits exceed costs? Research sample includes 11,313 youths (6,828 program group and 4,485 control group members) who completed a 48-month interview (response rate =81.5% for the program group and 77.4% for the control group)</p>	<p>Job Corps increased education and job training received both inside and outside the program by ~1,000 hours; 89% received vocational training (ave. of 1,140 hours of academic and vocational instruction= about one year of high school classroom instruction); Job Corps substantially increased the receipt of GED and vocational certificates by more than 20 percentage points each; no effects on college attendance or completion; participants' functional literacy improved Job Corps generated positive earnings impacts beginning in 3rd year after random assignment; impacts persisted through end of 4-year follow-up period; in year 4, earnings gain was about \$1,150, or 12% (gains were smaller in administrative records data); decomposition analysis suggested 2/3 of earnings impact was due to the impact on hours worked and 1/3 due to impact on earnings per hour; employed program participants slightly more likely to hold jobs that offered fringe benefits Estimated impacts in years 5-10 for full sample all near zero; 20- to 24-year-olds had earnings gains in years 5 to 10 (remained in Job Corps longer) Job Corps significantly reduced welfare receipt (by \$640) and the arrest rate (by 16% or about 5 percentage points); similar reductions found for conviction and incarceration rates; reductions in criminal activity were found across all youth subgroups Job Corps costs exceed benefits to society by about \$10,300 per participant (benefits from increased lifetime earnings=\$1,119, reduced use of other programs and services=\$2,186 and reduced crime=\$1,240)</p>	<p>Average program length=8 months, ~ ¼ participated for over a year, and 28 percent for less than 3 months 49% completed a vocational trade or GED (were enrolled for about 11 months on average)</p>