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Targeting Workforce Development Programs: *Who Should Receive What Services? And How Much?*

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November 2013

A combination of fiscal austerity, high unemployment rates and concerns about inadequate or depreciating skills among those out of work or the labor force have stimulated debate about the scope and targeting of workforce development programs (or active labor market policies as they are more commonly referred to outside the U.S., including subsidized employment, vocational and on-the-job training and job search assistance). Although there is little disagreement with the idea that there is potential to benefit from investments in human capital across the life cycle, limited resources necessarily constrain who receives these services, as well as the type and length (or intensity) of them. The recent shortfalls in labor demand that continue to depress labor market participation among youth, prime working-age adults and older workers have led to calls for an expanded public sector role in providing opportunities to upgrade skills and facilitate transitions (or reentry) into the labor force.

This paper begins with a discussion of theories that underlie or motivate public funding of workforce development programs. These include developmental/neurological arguments concerning the potential for learning across the lifespan and optimal periods for learning different types of skills; sociological life course theory on the interdependence of parents and children; the potential for broad societal impacts of human capital and workforce investments, and economic theories or arguments about the role of the public sector in addressing inequities and shortcomings in private investments in human capital. The paper then takes a closer, critical look at the current evidence base on workforce development programs/active labor market policy effectiveness, considering not only the findings of more recent or summary studies that have been growing in number, but also the limitations inherent in these studies and the available data. Finally, the third section of this paper considers what the U.S. might learn by turning an eye toward other countries, including how programs in other countries are organized and how client participation in training and outcomes are managed.

The major conclusions of this paper are as follows. Workforce development programs should target (or redirect) more resources for training to less advantaged individuals—i.e., those with lower education levels and limited work experience—who are least likely to receive

training from a private employer. Employers have little incentive to offer more general, portable types of training that are more likely to generate *external* benefits, and firm-specific training is increasingly likely to be offered to only the most-skilled workers. In terms of the types of training, more public resources for training disadvantaged adults should be allocated to sectoral training programs, which combine basic and occupational skills training with on-the-job training in labor market sectors with expanding job opportunities. Although some have argued that education and training for adults generates low returns in comparison to resources invested in children at young ages, there is ample evidence of significant, positive gains for disadvantaged adults from training (in terms of employment and earnings), and these gains for adults are likely to translate at least in part to benefits for children through increases in parental resources for investing in children, as well as through positive effects of parental employment on children's educational attainment, social behavior and educational/occupational aspirations.

There is a critical need for us to target more resources to adolescents and young adults before and during the sensitive period of their transition from secondary education to additional education and training and/or into the workforce. Compared to our competitors, there has been far less coordination between our K–12 education and workforce development systems than is needed to provide combined education and on-the-job training opportunities that the evidence base shows will yield greater labor market payoffs for young workers as well as employers. Specifically, *basic skills education needs to be integrated with vocational and on-the-job training to keep youth engaged*, and the earlier this is done, the better (i.e., before youth move on from postsecondary education). European-style “dual apprenticeship” programs are one possible option for more systemically integrating these types of skills training into high school curriculums. At the same time, the U.S. should not pull back from innovative efforts to develop more customized and personalized instructional supports and work-based learning opportunities for youth and young adults through joint education-workforce development initiatives.

Lastly, the U.S. Department of Labor (DOL) could take a more active role in coordinating, directing and supporting these expanding efforts to merge public and private sector resources and knowledge of labor market needs in developing integrated training opportunities (i.e., that combine basic, occupational skills and on-the-job training) for both youth and disadvantaged adults. The USDOL One-Stop Career Centers appear to be underutilized in this regard, with limited coordination between these centers, two-year educational institutions and employers in improving vocational education and expanding apprenticeships and on-the-job training opportunities. More comprehensive data need to be collected and compiled in the workforce development system and more widely shared for use in improving the quality and cost-effectiveness of training programs. And if we are going to do better in measuring the both the costs and broader impacts of training programs, we also need to link workforce development data to other administrative data on public programs and services (e.g., K–12 and postsecondary education institutions, criminal justice system information, public welfare, etc.), as well as information that would allow for calculations of worker productivity and economic returns from the perspective of employers and other stakeholders (e.g., taxpayers). The Workforce Data Quality Initiative, which supports the development and enhancements of longitudinal administrative databases that link workforce and education data at the state level, is an important step in this direction.

What is the Rationale for Public Funding of Workforce Development?

It is widely understood that our economic potential and well-being are critically dependent on an educated workforce that is able to learn new skills and adapt to an ever more competitive workplace and global environment. Yet leading researchers (Knudsen et al. 2006), employing an interdisciplinary (behavioral, economic and neurobiological) lens to consider the future of the U.S. workforce, have argued that the U.S. economy is increasingly at risk, because a growing fraction of the workforce is being raised in environments that will limit their skill development. Rates of high school and college completion and degree attainment have been stagnating in the United States, particularly for males, and men's labor force participation has decreased by nearly 10 percent since 1970 (Toosii 2012). At the same time, employment and earnings have been rising in higher-skilled professional, technical, and managerial occupations; individuals with a college degree realized a 46 percent increase in income over the last four decades, compared to only 7 percent for those with a high school degree (Haskins, Holzer and Lerman 2009). The education-race gaps in employment likewise look stark: while the unemployment rate for 16–24 year old males with only a high school degree was more than twice the national rate at 21.1 percent in 2011, for young black men aged 16–24 years, it was 34 percent, and over 50 percent for those without a high school degree (Dougherty 2011). These statistics suggest that we may be under-investing in human capital development and leaving too many young adults with inadequate skills and preparation for the workforce.

Early Human Capital Formation and Parental Contributions Through Employment

Behavioral and psychosocial research, in conjunction with studies of human capital formation, confirm that the early childhood years offer singular opportunities for developing human competencies, preparing children for life-long learning and minimizing risks imposed by socioeconomic and environmental disadvantages. The latest research points to early “sensitive” periods when the development of the brain's neural circuits may be particularly affected by a child's environment, although the brain never loses its capacity for further change over the life course (Johnson 2005). Accordingly, the quality of the early childhood environment has been shown to be a strong predictor of adult productivity, with early enrichment particularly important for the later economic success of disadvantaged children (Howard-Jones et al. 2012).

Synthesizing interdisciplinary theories and evidence on human capital development, Carneiro and Heckman (2005) sketched a now widely known graph (see figure 1) to illustrate the argument that “skill begets skill” and that investing in children at younger ages yields higher returns (about 6–10% annually) over time (Heckman 2000). Heckman and colleagues also make the argument that workforce development programs targeting adults yield returns that are substantially below the opportunity costs of funds invested in individuals at younger ages, although they do not discuss specific estimates of rates of return for adult programs. Clearly, spending on young children has a longer horizon over which to produce benefits than spending on adults. However, this depiction of lower returns to adult workforce development programs does not appear to take into consideration the role of adults in supporting their children through work (i.e., their ability to invest in “child quality”) and other ways in which parental employment influences children's development. Working parents generate earnings that can be used to

improve the quality of their children's nurturing and environments (e.g., through spending on nutrition, child care, health care, the safety of their physical surroundings, opportunities for learning, etc.). In lower-income families where work replaces welfare, reliance on welfare may appear less attractive (or self-sufficiency more rewarding) (Grogger and Karoly 2005). The New Hope program, which increased employment in low-income families through wage supplements and subsidies for childcare for adults who worked full-time, showed strong positive effects on boys' academic achievement, classroom behavior, social behavior and expectations for advanced education and occupational aspirations in an experimental evaluation (Huston et al. 2001).

New theorizing about how parents' and children's life trajectories are intertwined and about how learning, social development, and earning power across the life span rely on monetary and nonmonetary resources in the environment likewise challenge the view that investing in adults is considerably less productive. The emerging focus on "two-generation" strategies points out that programs providing education and skills training to adults have typically viewed children as a barrier to participation, rather than taking advantage of the opportunity to simultaneously engage parents and children in activities that promote human capital development (King et al. 2011). Research to date on two-generation approaches suggests the potential to multiply both the return on investments in early childhood education for children and postsecondary education and training for young parents through increased resources, social interactions and cognitive stimulation for young children, which in turn increase children's economic mobility (of which parental educational attainment is a strong predictor) (Magnuson 2007). In general, these strategies and the logic underlying them imply that investing in young children's education and investing in adults through workforce development programs need not be viewed as competing policy options, but rather as complementary and more effective uses of our resources for human capital formation and increasing workforce productivity.

In addition, to the extent that workforce development programs for adults can reduce job loss among parents or the length of time unemployment is suffered, it should also improve children's outcomes, given evidence showing that job loss can bring about substantial reductions in earnings that constrain investments in "child quality" and negatively impact health and family relationships (Ruhm 1991; Kerwin and Stephens 2004). Recent empirical studies (Rege et al. 2011; Oreopolous et al. 2008), which use firm closures or downsizing to identify the effects of loss of employment (distinct from other factors that affect children's outcomes), find that fathers' loss of employment has significant negative effects on their children's educational achievement and their earnings as adults, with larger effects for children whose fathers had lower earnings before job loss, as well as in communities with weaker job markets. Focusing on short-term measures of children's educational progress, Stevens and Schaller (2011) found that parental loss of employment increased the likelihood of a child being retained in school, with particularly large effects among children with less-educated parents (i.e., with a high school degree or less).

Skill Formation Over the Life Course and the Increase in Older Workers

The most recent neurological research (Howard-Jones et al. 2012) suggests that the brain is more malleable over the life course than earlier theories on human capital investment assumed (Leonard 2000), and that investments in older individuals can also realize positive returns. In fact, investments made in early human capital development are more likely to yield sustained

benefits if they are followed by later learning or training opportunities.¹ More generally, we now understand that learning is possible across the lifespan because of the brain’s ongoing ability to change its connectivity or “synaptic plasticity” (Howard-Jones et al. 2012).

Other research describes a number of ways in which the brain may improve with age (in adulthood), particularly in advanced capabilities that are associated with innovation and creativity (Johnson and Taylor 2006; Enayati 2012). Kathleen Taylor and colleagues (2000) elaborate that adults bring a wealth of experiences to learning—from their personal, work and social histories—which help them to make more meaningful connections and to differentiate and integrate in cognitive learning processes. Behavioral research also suggests that different aspects of executive function have different developmental trajectories, influenced in part by our interactions with the environment and how we perceive and make sense of these experiences (Blakemore 2010). Adults who lack these interactions and opportunities for learning may not advance beyond the way of thinking and perceiving that they attain by early adolescence.

These findings on adult learning are particularly important given implications of dramatic changes in the age distribution of the U.S. workforce, which are expected to continue in future decades and parallel those in Europe. Between 1990 and 2010, labor force growth was projected to be 24 percent; for the two decades between 2010 and 2030, labor force growth is expected to be less than one-half that rate, or approximately 10.5 percent. This slowdown in labor force growth is largely the result of the declining U.S. birth rate, which dipped in 2011 to the lowest ever recorded, at 63.2 per 1,000 women of childbearing age, and was led by a plunge in births to immigrant women. Although the 2010 birth rate for foreign-born women (87.8) was still nearly 50 percent higher than the rate for U.S.-born women (58.9), the overall U.S. birth rate is at only about half its peak (122.7 in 1957, a Baby Boom year). Importantly, the fall in the number of births to immigrant women is explained by behavior (falling birth rates), rather than population composition (i.e., the number of women of childbearing age), suggesting that future births to foreign-born mothers will not be able to stem this decline. Unless there is some other counterbalancing change such as an increase in labor force productivity or immigration, there will be corresponding slowdown in growth of GDP per capita. In other words, we will have to invest in the skills of adult U.S. workers to maintain or increase our economic productivity, as the impact of the aging population on our future living standards will depend greatly on the participation and productivity of an older workforce.

Potential for Broad Societal Impacts of Human Capital and Workforce Investments

Summarizing his research findings and views on policies for building human capital, James Heckman (2008, 49) argues that “many serious, costly economic and social problems such as crime, teenage pregnancy, dropping out of high school, and adverse health conditions are linked to low levels of skill and ability in society.” Correspondingly, in their re-analysis of the impacts of the HighScope Perry Preschool program, which enrolled disadvantaged children in an early education program in Michigan in the 1960s, Heckman and colleagues (2010) estimated the program’s impacts on a wide range of outcomes, including education, earnings, criminal activity (police and court, victim, incarceration and social costs of crime), tax payments and welfare

¹National Scientific Council on the Developing Child. Early experiences can alter gene expression and affect long-term development: working paper #10. Available at: www.developingchild.net.

receipt. Their re-analysis produced lower estimates of the rate of return than prior studies of the extensively studied Perry Preschool program (Barnett 1996; Rolnick and Grunewald 2003; Belfield et al., 2006), but crime reduction was still the major factor contributing to the estimated positive net benefits of this early childhood intervention, which is likewise true for related research on the impacts of Head Start (Garces et al. 2002). Belfield et al. (2006) identified Perry Preschool program benefits by category (e.g., education, earnings, crime, welfare, etc.), which clearly shows that if benefits were measured in terms of earnings alone, conclusions about the program's cost-effectiveness would be very different.

The key point here is that while evaluations of early childhood investments routinely incorporate the potential for much broader impacts and social benefits, evaluations of workforce investments rarely do, focusing almost exclusively on individual earnings and employment impacts.² Indeed, even though the national study of the U.S. Job Training Partnership Act (JTPA) examined program impacts on earnings specifically for a subgroup of youth with a prior arrest, the potential effects of the program in reducing criminal activity or youth delinquency were not discussed anywhere in the 467-page final report from the experimental evaluation (Bloom et al. 2003). And in their review of research evidence on returns to training in Europe, Bassanini et al. (2005, 9–10) concluded, “While we know a lot about private returns – even though some of what we know may be open to question – we are basically in the dark when it comes to social returns.”

Economic research on how wages and wage profiles vary, that is, generally sloping upward as human capital and skills increase with experience (Becker 1964; Mincer 1974), supports a focus on employment and earnings in measuring the impacts of workforce development programs. In the performance measurement system and in experimental and nonexperimental evaluations of U.S. workforce development programs to date, 10 of the 17 performance measures that have been used in the JTPA and Workforce Investment Act (WIA) programs focus exclusively on employment or earnings outcomes (i.e., entered employment rates, retention rates, average earnings or earnings changes), while three others measure both employment and credentials attained. In the federal performance measurement system, employment and earnings outcomes have been measured at either the time of program exit or in the first calendar quarter after program completion, although in the WIA program, average earnings and employment retention measures are now calculated in the second and third quarters after program exit.

In contrast, cost-benefit analyses of the Perry Preschool program (Barnett 1996; Belfield et al. 2006) have typically extrapolated measures of earnings to calculate lifetime earnings gains from participation, in addition to the lifetime tax contributions and reductions in public assistance associated with them. Because these human capital investments take place early in life, there is a long horizon over which to realize such returns. In fact, the latest Perry Preschool program impact estimates (across a broad array of outcomes) cover a follow-up period spanning

²A notable exception is the evaluation of a demonstration program, the Supported Work program (MDRC 1980) that offered the hard-to-employ (e.g., welfare recipients, ex-addicts, ex-offenders, high school dropouts) work experience combined with other work supports. The broader range of potential program impacts considered, in addition to employment and earnings, included: reductions in public assistance payments, housing subsidies and Medicaid, taxes paid and reductions in the costs of criminal and other antisocial behavior.

more than three decades, while it is only in a few of the more recent evaluations of workforce development programs that longer timeframes of 4–10 years have been used.

In summary, some recent comparisons of returns to human capital investments in earlier vs. later stages of the life cycle do not appear to put these programs on equal footing in terms of either the scope of potential impacts or the horizon over which returns are calculated. In addition, one might easily miss in the discussion of the analyses and simulations of Carneiro and Heckman (2005) and Cunha and Heckman (2006) that the comparison state they assume is one in which resources for human capital investment are spent smoothly over the life cycle. In light of the discussion above, a more appropriate alternative might be to consider that there are multiple, “sensitive” periods in a lifetime where greater public investments in human capital may be warranted. For example, recent research from the Harvard Center on the Developing Child describes the development of “executive function skills”—e.g., the ability to focus, hold and work with information, filter distractions and switch gears—as occurring throughout childhood and adolescence, strengthened by experiences that offer opportunities for their application and honed through experience. In fact, the Year Up program, which targets disadvantaged young adults for cognitive and non-cognitive skills training and connects them with internships and jobs, provides an example of a successful model for developing these types of executive function skills in young adults and helping them to apply them in leadership roles, decision-making strategies, team building, etc. (Chertavian 2012).

Role of the Public Sector in Supporting Human Capital Development

In the United States, private sector employers are responsible for the lion’s share of workforce development activity and associated spending, dwarfing public sector investments. Lerman’s research on employer-led training suggests that the U.S. is in about the middle of the distribution (relative to other countries) in terms of the incidence of employer-sponsored training, although U.S. employers do less well in particular categories, such as occupational training for younger workers (Lerman et al. 2004). In general, U.S. government spending on workforce development has averaged less than 0.5 percent of Gross Domestic Product (GDP) in recent decades, shares that are well below most western European countries, such as Denmark, Belgium, the Netherlands and Finland that have devoted six to seven times greater shares of GDP to labor market policy expenditures over time (e.g., Auer et al. 2008; Martin 2000). These statistics 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 about 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, but the premium should be smaller than that which would be paid for more general training, given that firm-specific training should be less readily transferable to another position or employer. One implication is that returns to training provided by employers are more likely to be privately realized if they are firm-specific, and 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 potentially 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 any comparable effects for specific training.

Lynch's (1994) study of the impact of private sector training on wages found that firm-provided, formal on-the-job training (for workers without a college degree) was concentrated among white, married unionized males with greater work experience and who lived in areas with lower unemployment rates. Firms were less likely to provide this more expensive type of formal training to new young labor market entrants who resided in high-unemployment areas or who did not complete a high school degree or did not have any post-high-school work experience. In fact, she found that workers without a high school degree received *lower* wages during on-the-job training, suggesting that these firms may have been providing more general training for these workers, who were, in effect, sharing the costs of this training with the firm. The American Society for Training and Development more recently 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. (2005) 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 (Goldin and Katz 2008; Autor and Handel 2009).

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 2012; 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). Acknowledging that the evidence base of *proven* youth programs is still thin, Heinrich and Holzer (2011) identified a number of *promising* interventions (based on initial outcomes or impacts) for raising students' awareness of and preparation for postsecondary education and/or for engaging them in career and technical education that is targeted toward economically growing sectors. However, the U.S. Department of Education recently cut funding for career and technical education by 20 percent, implying that we are reducing public support for these types of interventions (Field 2011).

Other research (Arum and Roska 2011; Holzer 2013; Rosenbaum et al. 2006) also points out that we have done poorly in providing adequate counseling, guidance and other information to students at the community college level about occupational training courses and the employment opportunities that may follow from them, especially for students who might be required to take remedial classes as well. And although this type of counseling and labor market information is freely available to students and job seekers at the U.S. Department of Labor's One-Stop Career Centers, there is inadequate coordination between these publicly funded centers and two-year educational institutions in promoting awareness and use of these resources (Holzer 2013). Indeed, despite the fact that Pell grant funding has been increasing for pursuit of postsecondary education and training, degree completion rates have been stagnant (Kelly 2010), suggesting missed opportunities for improving economic returns on these investments. A recent report on the costs associated with low community college completion rates estimates that reducing the dropout rate by half would generate an additional \$30 billion in income (from the new graduates), \$4 billion in additional federal tax revenues, and over \$1.3 billion more in state income taxes (Schneider and Yin 2012).

Finally, as already noted above, U.S. public investments in employment and training programs have been meager compared to other countries and have been declining over time, with the exception of a short-lived boost in program funding from the American Recovery and Reinvestment Act. It may be the case that the relatively low, U.S. per-trainee investment (and the small number of training slots) is inadequate for developing high-quality training, career and technical education, and apprenticeship opportunities that would yield higher individual and societal returns. Our few larger-scale efforts to evaluate the effectiveness of publicly funded employment and training programs have primarily looked at average training impacts and have

provided scant information on variance in returns to different types of training and credentials that participants receive, which might be used to better guide future investments. The next section of this paper takes a closer look at the existing evidence base on training effectiveness and considers how it is lacking.

What Does the Existing Evidence Base Tell Us About Training Program Effectiveness, and What Are Its Limitations?

Both public and private sector investments in training will likely be constrained by tight budgetary conditions 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. Even the largest or 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 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), 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 Kluve 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 current 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 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 2011; 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 (2011) 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.

One other highly consistent finding across numerous studies and countries is the poor outcomes for participants of subsidized, public sector employment programs; from the early JTPA study results to more recent summaries of evaluation evidence, programs offering subsidized public jobs are 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 since the recent Great Recession, there has been little discussion or public calls for bringing back programs that offer subsidized public employment.

Subgroup Heterogeneity in Program Impacts

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. 2011). 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. 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 recent (2012) 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. (2012), 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 (Bloom 2009; Bowles and Brand 2009; Heinrich and Holzer 2011). 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). 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.

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 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 2011; Hendra et al. 2011). 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.

Clearly, 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. Furthermore, resource constraints and policymakers' demands for timely information will inevitably limit the timeframes over which we measure program impacts, which will also compromise our efforts to better target workforce development resources toward the right interventions and at the best time in the trajectory of an individual's development. At the same time, 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 Melly 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. 2009; Rinne et al. 2011), and whether narrowly targeting training resources is an effective workforce development approach in and of itself. These issues are further addressed in the final section that considers what the U.S. might learn from other countries to improve its workforce development program organization, management and effectiveness.

What Can the U.S. Learn from How Programs are Organized and Operated in Other Countries?

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 program, 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 WIA's intensive or training services, which include comprehensive assessment and case management and vocational and on-the-job training (WIA, Section 134 3.A.i). As a result of these program changes, the share of low-income individuals receiving workforce development services has been reduced by one-third, 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. We currently spend more on the comparatively poor-performing WIA and trade adjustment assistance programs for dislocated workers than we do on training for disadvantaged adults. 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. The USDOL should 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. LaLonde and Sullivan 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) 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. At both federal and state levels, we should be looking to our German, Swiss, Australian and other peers who have already designed successful systems of youth skill development with high standards and in partnership with employers and training organizations, for guidance in these efforts.

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 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). 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.³ This amount is comparable to the Job Corps program costs. While James 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 continue to need targeted interventions that address these youth needs at this sensitive period during which they transition to adulthood and their future careers.

Seeding and Supporting the Expansion of 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).⁴ 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?

A report from the National Network of Sector Partners (Mangatt 2010) estimates that approximately 1,000 sectoral training partnerships are currently operating in the U.S., 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

³http://www.yearup.org/partners/main.php?page=federal_partners.

⁴The 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).

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). Today, a number of sectoral training initiatives are being 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. However, the U.S. investment in these strategies to date pales compared to that of its European counterparts. Looking at Spain alone, since 1993, 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), which averages to about \$85 million per year (European Centre for the Development of Vocational Training, 2008).

The U.S. Department of Labor is also not undertaking the type of coordinating and directing role that its European counterparts are willing to assume 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 that in the absence of a sizeable increase in funding for sectoral training programs (which is not expected), 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. That said, it also appears clear that the U.S. could substantially strengthen its efforts to actively promote sectoral training initiatives if it considered adopting some of the European strategies for helping to coordinate, incentivize and support (financially and non-financially) partnerships at both federal and state levels. In light of tight federal resources, one possibility would be to leverage a federal commitment through the WIA One-Stop Centers, which could 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.

Improving the Evidence Base

Finally, in both the U.S. and elsewhere, our knowledge base on what works in workforce development (or active labor market policies) is still very 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 not expected for a number of years yet. Another example of where we have been slow to get evaluations underway is the “two-generation” program strategies, which simultaneously engage parents and children in activities that promote their human capital development (e.g., education and skills training for adults and early childhood education for their children), and are already on their second design iteration (Chase-Lansdale and Brooks-Gunn 2013). A consortium of foundations, led by the Aspen Institute, is currently providing funding for some of the programs that are operational and is also supporting process evaluations, and yet we are lagging on commitments and resources to initiate an experimental or rigorous quasi-experimental evaluation that would generate useful evidence to go along with the enthusiasm that has been building for these programs. This is another example of where the U.S. Department of Labor could play a more active, leading role, e.g., in convening the current program and funding partners and lending support to more rigorous evaluation efforts.

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.

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Figure 1: Returns to Human Capital Investments (from Heckman, 2000)

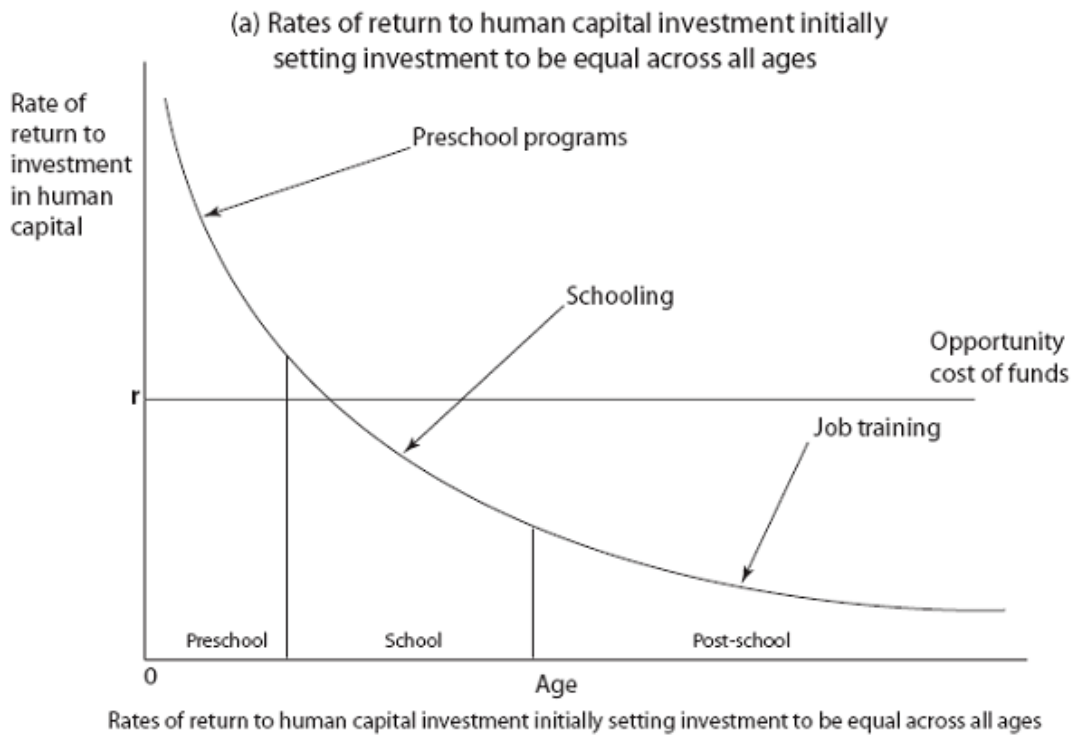


Table 1: Summary of findings from evidence base on workforce development program/active labor market policy effectiveness

| Study | Sample/methods | Outcomes by different types of programs and/or country | Other findings and limitations |
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| <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</p> | <p>Documenting cross-country variation in training is difficult due to idiosyncratic definitions of training in different surveys and country data</p> |

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| | | <p>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</p> <p>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> | |
| Study | Sample/methods | Outcomes by different types of programs and/or country | Other findings and limitations |
| Caliendo, Kunn & Schmidl, 2011, Fighting Youth Unemployment: The Effects of Active Labor Market Policies | 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>Main outcome: probability of being in regular employment; also look at participation in higher education</p> <p>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</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> |

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| | | <p>negative effects</p> <p>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>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</p> <p>No differential effects for men vs. women</p> <p>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 |
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| 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 | Meta-analysis framework to review findings from 345 studies of training programs in 90 countries (controls | 41% of 345 interventions found to have positive effects; 18% negative or | Report increasing convergence toward |

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| Training” | 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 | no effects; 34% insufficient evidence; only 16 studies include cost-benefit analyses Interaction of in-classroom + workplace training increases positive impacts 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 Training programs more effective in low- and low-middle income countries | 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 | 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 |

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| | | effect); welfare receipt is reduced Labor market controls suggests programs are more effective when demand for labor is greater | |
| Haelermans & Borghans, 2011, 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 | Administrative data from 12 states used with propensity score matching methods to evaluate program effects on average earnings and | In almost all states, Adult program impacts are positive—earnings benefits are smaller in | Costs incurred in the WIA program were not available; using |

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| <p>Non-experimental Net Impact Evaluation (with IMPAQ International)</p> | <p>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</p> | <p>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</p> | <p>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)</p> |
| <p>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</p> | <p>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</p> | <p>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</p> | <p>Data suggest that not all of the training was motivated by the ERA financial incentives</p> |

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| | | <p>specific occupations</p> <p>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</p> | |
| 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</p> <p>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?</p> <p>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</p> <p>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</p> | <p>Average program length=8 months, ~ ¼ participated for over a year, and 28 percent for less than 3 months</p> <p>49% completed a vocational trade or GED (were enrolled for about 11 months on average)</p> |

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| | | <p>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</p> <p>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)</p> <p>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</p> <p>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> | |
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