



# TRANSFORMING U.S. WORKFORCE DEVELOPMENT POLICIES FOR THE 21st CENTURY

## EDITORS

**Carl Van Horn**, John J. Heldrich Center for Workforce Development at Rutgers University

**Tammy Edwards**, Federal Reserve Bank of Kansas City

**Todd Greene**, Federal Reserve Bank of Atlanta

# **Transforming U.S. Workforce Development Policies for the 21st Century**

Carl Van Horn  
Tammy Edwards  
Todd Greene  
*Editors*

2015

W.E. Upjohn Institute for Employment Research  
Kalamazoo, Michigan

## **Part 2**

# **Redesigning Workforce Development Strategies**

# 8

## **Moving Sectoral and Career Pathway Programs from Promise to Scale**

Christopher T. King  
Heath J. Prince  
*University of Texas*

While the evidence is still emerging, it is clear from the handful of rigorous studies that have been conducted to date that sectoral and career pathway programs can be highly effective strategies for increasing the employability, employment, earnings, and other outcomes for job seekers. It is highly likely that such strategies lead to positive economic results for employers as well. They also yield lasting net benefits for taxpayers and society as a whole. The question then is how to sustain, replicate, and bring them to scale, which is the focus of this chapter.

It is important to note at the outset that, positive evidence notwithstanding, sustaining and scaling these strategies face a steep uphill battle, in no small part due to the legacy of decades emphasizing doing things “on the cheap.” Whether from the 1990s welfare reform efforts that stressed “work-first” labor force attachment models or from the early “sequence-of-services” approach embedded in the Workforce Investment Act (WIA) of 1998, strategies stressing real investments in skills leading to jobs paying wages offering economic self-sufficiency simply were not part of the policy and program landscape.

## THE RISE OF SECTORAL AND CAREER PATHWAY STRATEGIES

### Emergence

The family of strategies to help low-income, low-skilled individuals succeed in the labor market and to help employers meet their needs for workers with the right mix of skills began to emerge in the 1980s and 1990s. Initially, these sector-based strategies were designed to respond to the needs of key industry groups in various sectors by aggregating employer demand for common skills. It was assumed that this would introduce an efficiency and rationality missing from the existing workforce development system. While some of these programs focused on the low-skilled population, many more tended to help employers find and improve the skills of a more highly skilled and educated segment of the workforce.

Motivated by a need to improve workforce development programming, and acknowledging the reality that skills training would likely occur over the lifetime of the individual, advocates for career pathway strategies sought to create structured, sequential training and education opportunities that, over time, allow a worker to gain the skills needed to continue to advance in the labor market. With time, as it became clear that effectively meeting the skill needs of employers and the advancement needs of workers also required better structured program offerings from community colleges, sectoral strategies began to evolve into broader career pathway approaches involving provider institutions, especially community colleges, as well as employers. In some cases, this has meant the integration of career pathways into broader sector-based strategies. In others, however, it has meant the development of *occupational* career pathways almost completely free of any recognition of sectorwide needs.

Finally, given the desire to address the particular needs of job seekers pursuing sectoral and career pathway opportunities, many of whom had basic skills deficits that impeded their progress in for-credit as well as noncredit course sequences, so-called bridge programs—programs that aim to provide occupationally contextualized basic education in order to prepare participants to enter more formal postsecondary programs—

were developed. Some of these programs (e.g., Integrated Basic Education and Skills Training [I-BEST]) are now seen as national models for helping low-skilled adults contextually build basic *and* occupational skills at the same time in the pathways and sectors they are pursuing.

### **Sector Strategies, Career Pathways, and Their Integration**

While many career pathways programs claim to be sector-based, this is rarely the case, and for good reason. Sector-based strategies emerged independently and prior to career pathways as a framework for organizing investment in skills training. Over a relatively short period of time, however, what began as an effort to define advancement paths for workers participating in sector programs became a distinct career pathways approach to training as the workforce development field began digesting the expanding literature on the relationship between income and postsecondary credentials. This shift in emphasis from aggregating employer demand for skills within a sector to one focused on postsecondary credentials marked the beginning of what are known now as career pathways models.

While the precise origins of this evolution toward a focus on postsecondary credentials are likely not identifiable, simple observation of the changes in the workforce development field between the mid-1990s and early 2010s suggests that some early successes with sector-based programs and the appeal of providing workers with a semblance of employment security through career pathways programs led to the growth in foundation and, ultimately, government support for programs that would not only provide skills training but also potentially lead to a credential that, unlike some occupationally specific skills, was transferable.

A key distinction between sectoral strategies and career pathways models is that the former tend to be driven by employers organized within a sector, while the latter may focus on the needs of particular sectors but do not necessarily rely on employers as critical “drivers” and are typically occupationally, rather than sector, focused; they may successfully train and place dozens of certified nursing assistants each year with little direct input from health care employers, relying on labor market analysis, want ads, job vacancy postings and other information. Effective career pathway efforts may be developed and operate mainly

within community and technical colleges, but usually only with considerable input from employers in growth sectors.

### **Sector Strategies**

An organizing principle of sector-based programs is the assumption that there are efficiencies to be gained from collectively addressing the common skills needs of similar employers within an industry sector. For example, paper manufacturers in Western Massachusetts can, in theory, identify skill needs common across their companies, work with a local training provider to create training curricula, and hire from a common pool of workers trained in the skills needed. This approach is seen as a departure from past practice in which multiple training providers, to degrees varying between “hardly at all” and “effectively,” identified the skills in demand, created curricula they felt would meet this demand, and then competed among each other to have their trainees hired. Duplication of effort, inconsistency in training standards, and the occasional fly-by-night training providers all contributed to employers’ suspicion of the “second chance system,” not to mention the sometimes very poor services delivered to participants. Additionally, education and training institutions have little incentive to engage employers because their funding is based on enrollment in, and sometimes completion of, classes rather than on job placement.

Sector-based programs have expanded considerably since the first efforts emerged in the early 1980s. They have included the following, among others:

- The Bay State Skills Corporation was established in Boston in 1981 as an economic development tool that built education and industry partnerships to produce skilled workers for high-tech companies (initially) in Massachusetts.<sup>1</sup> It subsequently merged with the Industrial Service Program to become the Corporation for Business, Work and Learning, doing business as the Commonwealth Corporation. This may be one of the earliest examples of a concerted sectoral strategy in action. Commonwealth Corporation has continued to play a key role in fostering these strategies.

- San Antonio’s Project QUEST was designed in 1990–1991 and enrolled its first participants in 1992.<sup>2</sup> Its numerous offspring—Valley Initiative for Development and Advancement, or VIDA (Weslaco, TX, 1995), Capital IDEA (Austin, TX, 1998), Advanced Retraining & Redevelopment Initiatives in Border Areas, or ARRIBA (El Paso, TX, 1999) and several others—now span the South and Southwest, from Arkansas and Louisiana to Arizona and New Mexico. The Southwest Industrial Areas Foundation and its local interfaith affiliates develop and sponsor these projects. Project QUEST was explicitly designed to be driven by employers in key sectors of the economy (e.g., health care). These efforts provide intensive longer-term skills training, typically offer stipends to offset the costs of training and foregone earnings, and ensure broad-based community support (Campbell 1994; Deaton and McPherson 1991).
- The Wisconsin Regional Training Partnership (WRTP) was established in 1992 as part of an effort to “renew the industrial base of Milwaukee.”<sup>3</sup> It relied on a model of preemployment training for job seekers, helping them to qualify for family-sustaining jobs in the industrial sector. With the creation of Wisconsin Works (W-2) by Governor Tommy Thompson, WRTP provided opportunities for former welfare recipients and other low-income central city residents to acquire the skills they needed to qualify for family-sustaining jobs. Since 2001, when the organization began expanding into the construction sector as part of a grant from the U.S. Department of Labor/Employment and Training Administration (USDOL/ETA), WRTP has been known as WRTP/BIG Step.
- The JOBS Initiative, which was launched by the Annie E. Casey Foundation, operated for eight years starting in 1995 in Denver, Milwaukee, New Orleans, Philadelphia, St. Louis, and Seattle.<sup>4</sup> It aimed to connect young inner-city residents to family-supporting jobs and to improve the way urban labor market systems worked for low-income, low-skilled workers. The Initiative emphasized finding jobs with career opportunities and promoting longer-term job retention for participants, stressed the importance of both employers and job seekers as customers, focused

on outcomes to track performance, and used data to promote accountability.

- National Network of Sector Partners—funded by Ford, Mott, Annie E. Casey, and the William and Flora Hewlett Foundations—was formed in 1999 under the leadership of the late Cindy Marano and is an initiative of the Insight Center for Community Economic Development.<sup>5</sup> It is a nationwide membership organization (e.g., sector initiative leaders, researchers, employers, labor unions, funders) that promotes and supports sector initiatives.
- Washington State Skills Panels—regionally based, industry-driven partnerships of employers, public systems, and other stakeholders—began operating in 2000 and have expanded statewide in a number of key sectors, including the wine industry in the Walla Walla area in the southeastern part of the state.<sup>6</sup> They now appear firmly embedded in the state’s approach to workforce and economic development.
- The Accelerating Adoption of State Sector Strategies Initiative, a joint effort of the National Governors Association, the Corporation for a Skilled Workforce, and the National Network of Sector Partners, was launched in 2006 with support from the Ford, Charles Stewart Mott, and Joyce Foundations.<sup>7</sup> The initiative sparked interest in and supported the adoption of sector strategies in a dozen or more states relying on three major mechanisms: a six-state Learning Network (Arkansas, Illinois, Massachusetts, Michigan, Pennsylvania, and Washington), a five-state Policy Academy (Georgia, Minnesota, North Carolina, Oklahoma, and Oregon), and a Knowledge Exchange open to all states (NGA Center for Best Practices, National Network of Sector Partners, and Corporation for a Skilled Workforce 2008).

With major support and leadership from the Annie E. Casey, Ford, and Rockefeller Foundations, sectoral strategy efforts began morphing into the “workforce intermediary” activity in 2003 and 2004 (see Giloth [2004]). This activity centers around the convening function of third parties, typically some sort of CBO, but occasionally labor/management partnerships, community colleges, Workforce Investment

Boards (WIBs), or employer associations, to mediate between groups of employers and training providers to meet skill demands. The National Fund for Workforce Solutions, which was launched in 2007, led to further expansion of sector strategies fostered by workforce intermediaries with a mix of Ford, Annie E. Casey, Hitachi, and Joyce Foundation support, as well as early funding from USDOL/ETA.

### **Key Sectoral Strategy Components**

Sectoral strategies generally strive to improve the economic situation of workers through increased employment, wages, benefits, and earnings over time. They also seek to improve access to employees with the necessary skills, increase productivity, and boost regional competitiveness. As noted above, these strategies directly engage employers and associations of employers by industry sector to better understand and respond to their hiring and career advancement requirements.

Sectoral strategies tend to act as *integrators* (Glover and King 2010, p. 231). According to Conway et al. (2007), they

- target specific industries and/or clusters of occupations;
- intervene through credible organizations (often “workforce intermediaries”);
- support workers competing for quality job opportunities as measured by wages, benefits, and advancement opportunities;
- address employer needs and competitiveness; and
- create lasting change in labor market systems helping workers and employers.

At their best, they also tend to complement cluster-based economic development in states and regions that are actively pursuing such strategies by articulating career pathways and career advancement opportunities, developing standardized industry training, establishing standards for job quality and working conditions, assisting with market coordination, brokering business networks, and helping to develop strategic plans (NGA Center for Best Practices 2002, p. 32).

## Sector Partnership Features

As noted above, sector-based approaches typically include career pathways elements in that they aggregate employer demand for skill across a range of occupations, working to meet skill needs at multiple levels within a sector and to advance workers along a sector-based career path. The converse does not typically apply, however, in that while they may include the term *sector* in their title, most career pathways programs lack many of the defining features of sector partnerships, as well as the competencies needed to implement them.

The National Network of Sector Partners estimates that some 1,000 sector partnerships are operating across the country, and about half of the states and the District of Columbia are either exploring or implementing such strategies.<sup>8</sup> Such partnerships tend to span multiple industry sectors (83 percent) and have the features shown in Table 8.1.

## A Career Pathways Typology

At present, there are essentially two types of career pathways operating. The first type is built around an articulated set of courses, or components of courses, that permit individuals to learn skills and gain postsecondary credentials related to a specific occupation. These pathways identify entry and exit points along the way, from which individuals can enter postsecondary course work, exit into the labor market with a marketable skill and certificate to vouch for it, and reenter at a later point, earning credits that “stack” toward the completion of a degree. This type of career pathway emphasizes advancement along a well-defined postsecondary and employment track.

A second type of career pathway relies much less on a continuing role for postsecondary education for advancing individual workers. Instead, this type identifies occupations that appear to have career pathways built in, and it focuses more on preparing individuals, often through postsecondary courses resulting in the earning of industry-recognized certificates. This type more closely resembles the work-first approach to workforce development, placing the onus on workers to take care of their own advancement.

Measurements of success differ between these two types. With the former, success is typically measured in terms of advancement through

postsecondary course work and/or training, earning of certificates, placement in the labor market, earnings gains, and labor market retention. With the latter, metrics of success are typically limited to placement in a high-demand occupation, gains in earnings, and labor market retention.

**Table 8.1 Sector Partnership Characteristics**

Key features	Findings
Industry sectors	Sector-based programs operate in 22 different industry sectors, including health care (66 percent), manufacturing (57 percent), and construction (40 percent), which continue to be the three main industries targeted. More than a third of sector partner organizations operate in the energy and utilities sector, a growing trend.
Organizational types	Workforce Investment Boards (27 percent) and community-based organizations (22 percent) are the most common sectoral organizations, though many others (e.g., unions, community colleges) are in the mix as well.
Geographic scope	Sector partnerships are mainly city, county, or regional in scope (75 percent), while others are statewide or nationwide (22 percent combined).
Target populations	Individuals with low incomes and racial minorities make up large shares of participants served by sector partnerships, 50 percent and 46 percent, respectively. In addition, over one-fifth of participants are displaced/dislocated workers, nonnative English speakers, and those with less than 12 years of education.
Common services	Almost all (93 percent) sector partnerships offer direct services to workers or job seekers. The most common service is job seeker training (e.g., soft skills and job readiness training), followed by incumbent worker training (technical or trade skills), career counseling and management, and placement services.
Extended duration	Most (85 percent) have partnered on sector initiatives for at least 3 years with a median time of 6.5 years.

SOURCE: Mangatt (2010).

## Common Denominators in Career Pathways Programs

Career pathways programs are typically targeted to regional labor markets, sometimes focused on key employment sectors. They also combine education, training, and on-the-job learning.

Career pathways programs also aim to provide a framework for workforce development by integrating the various programs and resources of community colleges, workforce agencies, and social service providers in more structured sequences (Alssid, Goldberg, and Klerk 2002). According to Jenkins (2006, p. 6), the ideal types of pathways offer “a series of connected education and training programs and support services that enable individuals to secure employment within a specific industry or occupational sector, and to advance over time to successively higher levels of education and employment in that sector.”

Depending on the target group, career pathways programs may offer three levels of training: basic skills training, entry-level training, and upgrade training and education. They often provide paid internships as well. Such efforts have included *Shifting Gears*, a high-profile effort launched in 2007 and supported by the Joyce Foundation and matching state funds in six states (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin) as a “state policy-change initiative.”<sup>9</sup> *Shifting Gears* innovations included “breaking longer diploma and degree programs into shorter certificate modules, prioritizing industry and occupational sectors that offer good jobs in career pathways, and offering classes at a wider variety of places, days, and times” (Strawn 2010, p. 2). At least two *Shifting Gears* states’ efforts—Wisconsin Industry Partnerships and Illinois Career Clusters—stressed strong ties to sector and industry initiatives for their state adult education reforms.

Career pathways programs often feature what are referred to as bridge programs, or occupationally contextualized basic education programs, to bring low-income, low-skilled students’ basic skills up to levels that allow them to make progress in for-credit courses and advance effectively to the point of obtaining certificates and/or degrees with proven value in the labor market (Jobs for the Future 2010; Strawn 2011). The need to create these bridges became clear as career pathway efforts began coming to grips with the basic skill deficiencies their participants arrived with and the obstacles these presented for their advancing in the programs on any reasonable timeline. In some

instances, these became explicit “career pathways bridges” programs. Examples of these programs include the Breaking Through Initiative and Washington State’s I-BEST. Sectoral strategies sometimes include such bridge programs as well, depending on the entry-level skills of the job seekers they serve.

## **THE EVIDENCE: DO THESE STRATEGIES WORK?**

The evidence base for sectoral and career pathways programs and their expansion remains thin, but it is growing, and there is much more in the evaluation research pipeline.<sup>10</sup> Only a handful of highly rigorous impact evaluations have been carried out to date, though many more implementation studies have been conducted. Table 8.2 shows the more prominent impact evaluations that these programs have included.

Note that these evaluations mainly estimate the impact of the intent to treat; the Capital IDEA and I-BEST evaluations also estimate the impact of the treatment on the treated. The difference between the two estimation approaches can be substantial when a large share of those assigned to a particular treatment fail to receive it.

### **Effects on Program Participation**

Most process studies report that sectoral and related programs tend to have high rates of participation in program services, as well as high program completion and credential rates, distinguishing them sharply from typical education and training programs that have served low-income, low-skilled populations in the United States in recent decades. It has been quite common for those assigned to different training strategies in major national evaluations—such as the Job Training Partnership Act Study in the late 1980s and early 1990s (Orr et al. 1996) and the National Evaluation of Welfare-to-Work Strategies (NEWWS) in the mid- to late 1990s (Hamilton 2002)—not to receive the treatment at all, while many of those assigned to the control group have in fact received similar services. Unfortunately, few of the more rigorous evaluations of sectoral or career pathway programs have tracked increased

**Table 8.2 Rigorously Evaluated Sector-Based, Career Pathway, and Bridge Programs**

Method	Description
Random assignment	Three sectoral training programs—Per Scholas (New York City), Jewish Vocational Service (Boston), and the Wisconsin Regional Training Partnership (Milwaukee)—conducted by Public/Private Ventures and the Aspen Institute (Maguire et al. 2010).
Quasi-experimental evaluation and return-on-investment analysis	Capital IDEA, an Austin, Texas–based sectoral training program conducted by researchers at the Ray Marshall Center at the University of Texas at Austin’s LBJ School of Public Affairs (Smith, King, and Schroeder 2012; Smith and Coffey (Chapter 31 in this volume).
Random assignment	Comprehensive Employment Training (CET) Replication initiative, a sectoral career pathway program for youth, conducted by MDRC (Miller et al. 2005).
Random assignment	Year Up, a multisite career pathway, sectoral, and bridge program for youth and young adults, conducted by Economic Mobility (Roder and Elliott 2011, 2014).
Quasi-experimental	Washington State’s Integrated Basic Education and Skills Training bridge program conducted by researchers at the Community College Research Center at Columbia University (Zeidenberg, Cho, and Jenkins 2010).

participation, completion, or credential rates. Table 8.3 shows the statistically significant results from these studies.

### **Labor Market Impacts**

Rigorous evaluations of sector-based and career pathway programs also estimated meaningful, statistically significant impacts on key labor market outcomes of interest for participants, and these impacts tended to be longer-lasting than those of typical workforce programs.

**Table 8.3 Participation Effects from Sector-Based, Career Pathway, and Bridge Program Evaluations**

Program	Participation effects
Per Scholas, Jewish Vocational Service-Boston, Wisconsin Regional Training Partnership (WRTP)	Participation in education and training services was fully 32 percentage points higher for participants in the three sectoral programs relative to controls.
Comprehensive Employment Training (CET)	Participating CET youth received 145 more hours of training and earned credentials at a rate 21 points above that for controls.
Year Up	Year Up participants were actually 13 points <i>less</i> likely to have attended college in the four years following random assignment than controls; adjusting for non-receipt of services (i.e., the effect of the treatment on the treated), participants were fully 20 points less likely to have attended college.
Integrated Basic Education and Skills Training (I-BEST)	I-BEST participants experienced a 17-point increase in service receipt, a 10-point increase in college credits earned, and a 7.5-point increase in occupational certifications earned three years after enrollment; however, there were no statistically significant effects on the number of associate's degrees earned.

SOURCE: King (2014).

### Employment

With the exception of Year Up and I-BEST, participation in sector-based and career pathway programs was associated with statistically significant increases in employment extending from two to seven and a half years postprogram. Even in programs that did not boost overall employment rates (such as Year Up), program participation led to increased employment in the targeted sectors, typically in much better jobs than those held by control group members.

## Earnings

Sectoral and related strategies generally produced significant increases in earnings for participants. Earnings impacts of 12–30 percent were found extending from two to seven and a half years after enrollment and stemmed from both increased duration and hours of work as well as higher wages. For example,

- WRTP participants earned 24 percent more than controls over the two-year study period, largely from both higher wages and working more hours; they were much more likely to work in jobs paying \$11 and \$13 per hour than controls. Participation in Jewish Vocational Services-Boston and Per Scholas was associated with similar results.
- Participation in Austin’s Capital IDEA led to substantial earnings increases over nearly eight years post program and also increased participants’ eligibility for Unemployment Insurance by 11–12 percentage points, allowing many of these low-income workers to become eligible for the first-tier safety net.
- Year Up participants’ earnings exceeded those of controls by 32 percent three years after the program, largely as a result of trainees working in jobs that were full- rather than part-time (and paying higher wages—\$2.51 per hour more).

Finally, one of the few studies to examine ROI estimated internal rates of return (IRR) of 9 percent for taxpayers and 39 percent for society over 10 years; the estimated IRRs were 17 percent for taxpayers and 43 percent for society over 20 years (Smith and King 2011). Returns for individual participants were even higher, at 73 percent and 74 percent for 10 and 20 years, respectively.

So, while the evidence is still emerging, these studies suggest that sectoral and career pathway programs can be highly effective strategies for increasing the employability, employment, earnings, and other outcomes of job seekers. While it is likely that these programs also benefit employers by improving worker productivity and enhancing their economic competitiveness and profitability, these are not impacts that have been estimated to date, either in simple outcomes studies or more rigorous evaluations. The findings also suggest that these strategies may yield lasting net benefits for taxpayers and society as a whole.

## **APPROACHES TO PROGRAM REPLICATION AND SCALING: A BRIEF REVIEW**

Replicating effective program models, those supported by rigorous evidence, and taking them to something approaching scale with fidelity and a modicum of success have long been the concern of policymakers at the federal and state levels. Excellent examples of replication and scaling efforts in recent years include those around the Comprehensive Employment Training (CET) program in the 1990s, the push to expand workforce intermediaries across the nation led by the National Fund for Workforce Solutions since the mid-2000s through the use of funders' collaboratives, the initiative to replicate the I-BEST approach in the 2000s, the Southwest Industrial Areas Foundation (SWIAF) efforts to build a network of sectoral/career pathway programs since the 1990s, and the ongoing work of the Alliance for Quality Career Pathways to establish quality career pathway approaches in the states led by the Center for Law and Social Policy (CLASP), the National Governors Association (NGA) and others, to name some of the better known ones.

These and other efforts have employed differing models and approaches, have faced numerous challenges, and have been able to take advantage of opportunities along the way. Some have enjoyed more success than others. Examining these in the context of the literature on replication offers lessons that may be applicable to the replication and scaling of sectoral and career pathway models.

### **Replication and Scaling Models**

Bradach (2003) describes five approaches to replication and scaling: 1) the franchise approach, 2) mandated replication, 3) staged replication, 4) concept replication, and 5) spontaneous replication. Franchising is typically utilized by a central or national office that is coordinating the expansion of a model with a highly standardized set of components, such as CET. Mandated replication is often directed by government, federal or state, which wants to expand a particularly effective service model, as may happen under the newly reauthorized Workforce Innovation Opportunities Act of 2014. Staged replication generally entails a three-staged approach starting with a pilot testing for concept viabil-

ity, moving to a demonstration phase, and ultimately to full replication (e.g., the JOBS Initiative of the 1990s and the National Fund for Workforce Solutions [NFWS] starting in the mid-2000s).

Concept replication is focused more loosely on components and general principles guiding the model, rather than on specific components, e.g., I-BEST, NFWS, and AQCP. Finally, spontaneous replication is characterized as an approach that is more bottoms-up, responding to demands for information and assistance from partners who are potential collaborators on program expansion, such as SWIAF. This is one useful conception of these models. There may be others worth considering as well.

### **Big-Picture Challenges and Opportunities**

Replication and scaling are fraught with challenges. To be sure, the biggest of these is simply the lack of adequate resources. In the face of reasonably convincing evidence that a “better mousetrap” exists, without resources program officials are unlikely to promote these strategies. Equally problematic, resources may well be present but may be tied to conducting business as usual, whether in terms of WIA’s sequence of services that leave little funding for training, or the community college system’s emphasis on enrollment in programs over labor market outcomes for career pathways participants.

Second, key components, activities, or services for effective models may simply not be permitted under particular programs or funding streams, or they may be difficult to support and implement across funding streams and platforms. For example, while more intensive, longer-term training is a component of sector-based and career pathway programs, Temporary Assistance for Needy Families and Supplemental Nutrition Assistance Program employment and training programs may not readily allow them, despite the presence of a large population in need.

Third, state or local policy orientations and priorities—for example, a continuing preference for work-first, labor force attachment approaches—may also inhibit expansion of these models, federal provisions notwithstanding. There is wide variation from state to state and WIB to WIB in the share of WIA expenditures on skills training (Barnow and King 2005; Mikelson and Nightingale 2004).

Finally, community and technical colleges exhibit a large range in terms of their priorities and focus as well. Some are eager partners in workforce training initiatives and have strong connections with employers and industry associations, while others are largely focused on performing the academic transfer function for four-year institutions of higher education. Expanding sectoral training and career pathways in such communities would be daunting.

There are also big-picture opportunities. First, the policymaking community and the wider public appear to be acutely aware of the skills challenges the United States now faces if it hopes to maintain its edge in global competition. They also seem to be highly supportive of and willing to fund evidence-based initiatives to address these concerns. Importantly, this support tends to cross the political aisle.

Second, there is probably strength in expanding using multiple replication models: any number of organizations and networks now appear to be strongly supportive of the expansion of sector-based and career pathway approaches in ways that seem to fit many, if not most, of the replication models.

Finally, career pathways approaches are tailor-made for the “completion agenda” promoted by the Obama administration and taken up by multiple governors, emphasizing the attainment of postsecondary credentials by 60 percent of the adult population by 2025. If it is to meet this goal, the completion agenda will not only need to focus on traditional students, but it will also need to include as an objective increasing the occupational skills and education of nontraditional students (i.e., working-age adults). Well-designed career pathways programs that include multiple postsecondary entry and exit points, award industry-recognized credentials, and work toward a postsecondary degree are highly complementary to the broader postsecondary goals set by the administration.

## **SPECIFIC CHALLENGES TO SUSTAINABILITY AND SCALE**

Multiple challenges to expansion and sustainability exist for both career pathways and sector-based programs, not least of which is the current congressional stalemate that serves as the backdrop to these

efforts. Congressional attitudes aside, career pathways and sector-based programs will need to clear several hurdles before replacing business-as-usual in the workforce development field. Descriptions of these hurdles follow.

## **Entropy**

Career pathways programs have gained considerable traction in recent years, with specific programs and studies written into UDSOL requests for proposals, and multiple national and state initiatives supported by private foundations and state agencies. Despite this support, however, and despite (broad) guidelines put forward in federal requests for proposals, the approach has suffered from inconsistency in design, definition, and implementation, making it difficult to determine whether the approach is effective versus whether a particular career pathways program has succeeded in meeting its goals. This point is not lost on proponents. Career pathways advocates, such as CLASP, the Workforce Strategies Center, and Jobs for the Future, have attempted to create frameworks to assist in standardizing the approach with a common definition of terms, metrics, and outcomes to which career pathways programs should conform.

These frameworks each contain many of the same fundamental career pathways elements—some level of employer engagement, a recognition of the importance of postsecondary credentials, and the need for support services. However, they vary along several lines, including the key partners and their roles (are career pathways primarily part of the workforce development system or the postsecondary education system; are individuals or systems, whether workforce development or postsecondary education, primarily responsible for mapping out advancement opportunities?), and the importance placed on a clearly articulated set of outcome metrics. On this latter point, CLASP has developed beta versions of a framework as part of its Alliance for Quality Career Pathways (CLASP 2013b), in which it specifies a series of interim education and training and labor market outcomes, as well as a set of suggested criteria that can be used by developers to create and assess the performance of career pathways.

The absence of a clear and widely accepted definition of what constitutes a career pathway has contributed to a sort of entropy as the

practice has expanded. Where definitions exist (e.g., USDOL's guidance memos), enforcement of the application of these definitions often falls short. One USDOL-supported career pathways program currently operating was funded thanks to a proposal that provided a state-of-the-art definition of a career pathways model. However, holding the several WIBs involved accountable for implementation of this approach, as opposed to the short-term training for which they have opted, has fallen largely to an intermediary with no real authority for mandating WIB compliance.

If career pathways and sector-based models are ever to replace the status quo, and if the evidence base for their effectiveness is to grow, some mechanism, such as restrictions on eligibility for applying for future innovation grants, for holding implementers accountable, will need to be put into place and routinely used. Absent this, WIBs, with some justification, will be tempted to use this funding to replace funding lost in prior years.

### **Funding Erosion**

Federal, state, and local funding for workforce development programs has seen steady erosion over the past few decades, with ARRA investments in 2009 the exception that proves the rule (see Eberts and Wandner [2013]). With the exception of Pell Grants, federal funding for employment and training programs has remained essentially flat and, since 2000, has even seen modest declines from already poorly funded levels. Until very recently, state and local funding has fared little better than federal support for workforce development programs.

The erosion of funding for workforce development programs reflects a broader attitude among policymakers, one that sees human capital development as a cost to minimize rather than an investment that will produce positive returns. As the center of the policy discourse has shifted rightward over the past two decades, advocates for social safety net programs in general, and employment and training programs in particular, have lost ground to advocates for a leaner government, tax cuts, and, implicitly, a greater degree of self-reliance. Successfully portraying workforce development programs as second-chance programs has meant, among other things, that innovation in the field, such as career pathways and sector-based programs, often comes at the expense

of current programs, rather than in addition to. “Robbing Peter to pay Paul” is a recipe for failure, and efforts to sustain the more effective programs will continue to suffer as a result.

### **Poaching**

While an improvement on the status quo, sector-based programs are not without limitations. Where the ideal type of sector-based program described above has existed, it has had to guard against “poaching” among participating employers—that is, against the practice of employers hiring participants from training programs before they have actually completed the program.

This workforce development equivalent of the “tragedy of the commons” has undermined many promising sector-based programs, particularly in times of tight labor markets. Indeed, by virtue of the fact that these programs are designed to respond to critical education and skills shortages, career pathways and sector-based programs are often the victims of their own success. One career pathways program operating in a state currently experiencing a boom in its extraction industry has had to contend with employers hiring students long before they have completed their programs and, more important, earned the certificates that should serve them over the long term. Only after lengthy negotiations between the colleges and employers has this practice begun to turn around.

### **Lack of Substantial Support from Employers and Industries**

On the other side of the poaching coin is the difficulty in remaining relevant to employers. Sector-based programs are effective only when there is significant employer engagement. As noted above, employer engagement can take many forms, including providing input on training curricula, donating machinery on which to train, providing subject matter experts to assist with instruction, funding worker training, hiring, or some combination of these.

However, gaining and maintaining employer engagement is subject to a number of factors, not least of which is demand for skills in the targeted industry. The tight labor markets of the late 1990s and early to mid-2000s made for relatively high levels of employer engagement

and led to the creation of a number of particularly innovative workforce development programs (see, for example, Barnow and Hobbie [2013]). With the onset of the Great Recession in 2008 and the sharply increasing unemployment rates across the board, sector-based programs began to experience difficulties in maintaining employer interest. Larger numbers of skilled workers looking for employment, coupled with the contraction of the overall economy, led to a waning interest in sector-based programs among employers.

The cyclical nature of employer engagement has been, and will continue to be, a limiting factor in sector-based strategies' ability to significantly influence the larger workforce development system, unless the approach is systematically adopted as the organizing framework for public investment in workforce development. This position currently is held by postsecondary education-based career pathways approaches that place a greater emphasis on the awarding of marketable certificates and credentials than on organizing sector actors around the key characteristics of sector-based strategies noted above, namely, working directly with employers in a given sector to identify common skill needs, factoring the regional economy into the equation, and promoting worker advancement as a function of skill development within a specific sector. Career pathways programs right now are dominated by occupational-based rather than sector-based training, rarely taking the regional economy into consideration, and frequently operating with little, if any, direct employer input. Also, the focus on bringing the low-skilled into the labor market seemingly would no longer be of interest to employers who can be more selective and favor the already prepared applicant.

### **Cross-Platform Conflicts**

Long considered one of several venues for skills training, including apprenticeships and on-the-job training, postsecondary institutions have become the venues of choice for workforce development practice in general and, more recently, sector-based programs and career pathways in particular. This move was supported by a growing literature on the merits of postsecondary credentials for labor market advancement, as well as the wider dissemination of innovative programming among some higher education institutions (e.g., the North Carolina Commu-

nity College System, admittedly designed primarily for workforce development and, later, the Washington State Board for Community and Technical Colleges).

However, this move has been resisted by postsecondary institutions, especially by community college faculty, over concerns that the academic mission of the institutions is diminished by acting as training providers rather than as transfer institutions. Resistance also has come from WIBs over concerns that the ever-shrinking pot of employment and training funds is being increasingly repurposed to provide education and training services for participants in postsecondary education programs (namely, the repurposing of WIA training funds, the significant percentage of Workforce Investment Fund projects with postsecondary partners, and the designation of postsecondary institutions as the grantees in USDOL's Trade Adjustment Act Community College Career Training initiative).

In addition, the metrics by which a career pathways or sector-based program may measure success—such as completion of industry-recognized credentials, advancement in the labor market, or earnings gains—often work at cross-purposes with the metrics by which WIBs measure success—typically limited to placement, earnings gains, and retention. Where a WIB is funded to implement a career pathways program, effectively implementing the program must include some method for taking these more comprehensive metrics into account.

These tensions, while certainly still present, have become somewhat less visible as policies take root and the administration endorses a closer alignment between workforce development and postsecondary education. Notable exceptions to these tensions exist, however. Washington State's Skills Panels and Wisconsin's efforts under the Shifting Gears Initiative, for example, have successfully combined not only postsecondary credentials with workforce development system funding and support, but also, especially in Wisconsin, combined a genuine sector-based approach with a career pathways model. As noted above, Washington was able to achieve this through state policy that enabled the creation of a network of regional, sector-based collaboratives.

Wisconsin's success was built on several factors, including solid design and implementation, close coordination between principal actors in the state's Department of Workforce Development and the community and technical college system, a replication of this relationship at

the regional level between WIBs and community colleges, seed funding from the Joyce Foundation, state funding, and executive-level buy-in. To be sure, there are other examples, but each likely has some of these elements in common.

### **Weak Adult Education Programming**

The emergence of bridge programs and the implementation of contextualized instruction in the I-BEST spinoffs are an acknowledgment of the difficulties in serving minimally literate, low-skilled individuals in programs that are ultimately designed to provide workers with literacy and skill levels sufficient to fill high-skilled, high-demand occupations. Adult education has long been viewed a relative backwater in the realm of workforce policy and programming (see, for example, National Commission on Adult Literacy [2008]). Funding has been severely limited and has largely flowed to state and local programs regardless of performance, while content and curriculum have received inadequate attention, all despite the critical role of basic skills in helping adults prepare for more advanced skills training.

### **Poor Participant Supports**

Given that a large majority of sector and career pathways programs are funded by the second-chance public workforce development system, it stands to reason that these funds are targeted to serve a population that requires significant support to complete their programs. However, career pathways or sector programs rarely come funded at the levels needed to pay for most of the more basic support services, such as child care, transportation, or assistance with books and fees, let alone many of the other services that can contribute to program completion, such as tutoring, mentoring, or career counseling. Instead, funding comes with a small fraction of the support needed, with the expectation that existing or matching funds will be used to make up the difference.

Even when appropriately funded, implementing support services can be difficult. Integrating the provision of services into a postsecondary-based career pathways or sector-based program requires coordination between staff who understand the needs brought by the population being served and a postsecondary faculty who may object to the inter-

ruption to routine that the provision of these services can represent. Here again, the traditional mission of postsecondary education comes into conflict with the focus on workforce development that career pathways and sector-based programs represent. Changes to student orientation programs, additional flexibility in course scheduling due to work and transportation conflicts, limited funding available for counselors with the requisite skills for serving nontraditional student populations, and time required for faculty training in the need for these services each represent strains on the status quo and create friction points.

### **Work-First Policy “Hangover”**

Despite the innovations that career pathways and sector-based programs represent, both are still burdened by a hangover of sorts from the previous era of work-first policies. These policies emphasized very short-term training and placement in employment over longer-term education and training programs that prepare individuals for employment in family-supporting occupations that also provide opportunities for advancement. The work-first mantra was: “Get a job; get a better job; get a career.” Work-first is now widely discredited on numerous fronts, ranging from intensive, longitudinal research on labor market transitions showing that remaining in low-wage jobs and sectors typically leads to wage stagnation (e.g., Andersson, Holzer, and Lane 2005; Brown, Haltiwanger, and Lane 2006; Holzer et al. 2011), as well as longer-term evaluation results demonstrating that the near-term labor market impacts of labor force attachment tend to fade out, while skills investments persist over time (e.g., King 2004; King and Heinrich 2011).

## **KEY OPPORTUNITIES FOR GOING TO SCALE**

The greatest opportunities for taking sectoral and career pathway models to scale are found in a number of different workforce and education arenas that are discussed below. All of them are likely to be aided to an extent as yet unknown by the newly enacted Workforce Inno-

vation Opportunities Act, which passed both houses of Congress with near unanimity and was signed into law by President Obama on July 22, 2014. Further assistance may be forthcoming by way of Perkins and Higher Education Act reauthorizations if Congress can sustain its rare bipartisan comity on them.

## **National Networks and Initiatives**

Over the past few decades, a number of national networks have grown up in support of sectoral and career pathway strategies. These seem to offer the best opportunities for scaling up such strategies over time in that they are committed to these strategies, have developed specialized expertise and lasting relationships with providers and employers in key sectors, and in some cases have created political and related community networks to sustain and support them. Some of the more noteworthy of these are discussed below.

### **National Fund for Workforce Solutions**

The NFWS was launched in the mid-2000s by the Annie E. Casey, Ford, and Rockefeller Foundations to foster the use of workforce intermediaries and sectoral strategies led by funder collaboratives in communities across the country. USDOL, the Hitachi Foundation, and other funders joined the effort soon after, and, nearly a decade on, NFWS-supported projects are operating in more than 30 communities. NFWS sites offer another major opportunity for scaling up sectoral and career pathway strategies for many reasons, not least of which is that they have already established critical operating relationships among funders and providers and have also gained traction with employers and industry groups in these same communities.

The NFWS has engaged over 4,500 employers in 90 sector partnerships, serving nearly 55,000 individuals, to whom over 37,000 degrees and credentials were awarded between 2008 and 2013. More than 500 regional and local funders have contributed approximately \$200 million in matching funds. The sector partnerships supported by the NFWS often include organized labor, WIBs, CBOs, and educational institutions, with some partnerships consisting solely of a labor-management partnership.

### **Labor/management partnerships**

Several longstanding sector partnerships are labor/management partnerships. The American Federation of State, County and Municipal Employees (AFSCME) District 1199c's Training and Upgrading Fund in Philadelphia works with several area employers to train over 2,000 health care workers per year. Service Employees International Union Local 615's Voice and Future Fund works with a range of Boston firms and universities to create career ladders for custodial workers. WRTP has, since 1997, received funding from private foundations, state agencies, USDOL, and numerous others to work with unions and employers to, among myriad other investments, create registered building trade and manufacturing apprenticeship programs in the Milwaukee area.

### **Southwest Industrial Areas Foundation**

As noted earlier, the SWIAF was one of the pioneer organizations in the sectoral arena, launching Project QUEST in the early 1990s and then seeding spinoff projects in communities all across the South and Southwest, including Capital IDEA in Austin and Houston, ARRIBA in El Paso, and VIDA in the Lower Rio Grande Valley, as well as efforts in Arizona, Arkansas, Iowa, and Louisiana. Each of these efforts has a somewhat different focus and base of operations tailored to the needs and priorities of the local Industrial Areas Foundation (IAF) affiliate organizations. They also have a critically important feature: political organization and clout emanating from the local community and the ability to mobilize strong support for their efforts from a wide base of governmental and philanthropic sources (see Glover et al. [2010]). IAF groups have also pushed state legislative initiatives that foster the spread of sectoral strategies as they have done in Texas with state funding. For example, House Bill 437, which was advocated by the Network of Texas IAF organizations, was signed into law by Texas Governor Rick Perry and was designed to fill high-demand, high-wage jobs in Texas.<sup>11</sup> House Bill 437 will move the successful Jobs and Education Training Program's Launchpad Fund to a new college home as the Texas Innovative Adult Career Education Grant Fund. The legislature also budgeted \$5 million for the fund to invest in high-skill training over the next two years. This is a model that likely can be replicated in other states.

### **National Network of Sector Partners**

As noted earlier, the National Network of Sector Partners (NNSP) has operated as a major support group for sectoral strategies since 1999. The fact that the NNSP operates with a mix of philanthropic funding plus member dues gives it staying power that some other efforts may lack. Member dues reflect a level of commitment to sectoral strategies that can be leveraged for other support over time. Additionally, NNSP partners are members of the sectoral strategies “choir,” which reaches out to others with a credibility that is important for sustainability.

### **Alliance for Quality Career Pathways**

The Alliance, a collaboration among the Center for Law and Social Policy, the Joyce Foundation, the Corporation for a Skilled Workforce, and others, also represents a real opportunity for sustaining and scaling effective workforce services built around career pathway strategies. The collaborators all are recognized leaders in this area and have chosen to focus on quality services and relationships, as well as metrics for measuring service provision and its outcomes and impacts over time.

### **State policy support**

A number of states have provided continuing support for sectoral and career pathway strategies over time. Some of these are noted below. In addition, the overwhelming majority of states have training funds that have been created from UI tax diversions, or in some cases state general revenues; these may provide a mechanism for scaling these strategies as well.

### **Commonwealth Corporation**

The Commonwealth Corporation in Massachusetts may well be the earliest of sectoral strategy initiatives, having gotten into the field in the early 1980s. As a quasi-public entity, it provides an excellent example of consistent bipartisan state support for sector strategies that could be replicated in other states.

### **Washington State skills panels**

Washington embedded support for sectoral strategies in state policy starting in 1990 and has continued to foster sectorally based skills panels in regions across the state to the present.<sup>12</sup> Washington's skills panels encompass a wide variety of industry sectors, ranging from the wine industry in Walla Walla in the southwestern corner of the state to interactive media in Seattle to advanced manufacturing and clean energy in a multistate region. The second generation of its skills panels was launched as the High Skills, High Wages Fund in 2008.<sup>13</sup>

### **Texas initiatives**

As noted above, Texas has supported sectoral and broader cluster-based strategies through a series of executive and legislative initiatives for over a decade, only in part due to the urging of the IAF and its affiliates. The Texas workforce system has emphasized training for jobs in growth occupations and industry sectors, at least since passage of state workforce reform legislation in mid-1995, but it has also continued such a focus with the governor's 2005 Texas Industry Cluster Initiative stressing support for economic and workforce development in Advanced Technologies and Manufacturing, Aerospace and Defense, Biotechnology and Life Sciences, Information and Computer Technology, Petroleum Refining and Chemical Products, and Energy. It is also noteworthy that the Texas Association of Workforce Boards recently put forth a set of recommendations supporting career pathways models for education and workforce development in the state (Texas Association of Workforce Boards 2014).

### **State training funds**

State training funds are an as-yet underutilized source of support for sectoral and career pathway strategies, although greater attention has been focused on them in recent years (for example, see King and Smith [2007]). Whether funded from diverted UI taxes or state general revenues, such funds now operate in more than 40 states and often fund skills training in growth sectors via community and technical colleges in partnership with employers or industry groups. Political support for these funds appears to be robust and is particularly strong within the business community. Aligning these funds more closely with sectoral

and career pathway strategies should be relatively easy as policy initiatives go.

The Workforce Innovation Opportunities Act of 2014 raises the profile and standing of sectoral and career pathway strategies considerably, but it remains to be seen whether USDOL will be able to go beyond mere encouragement to actually incentivize the adoption of such strategies by states and LWIBs as part of a more concerted national policy. To its credit, USDOL has contracted with several organizations to begin providing technical assistance to states and local boards to foster more widespread adoption of these strategies.<sup>14</sup>

Key provisions of the Workforce Innovation Opportunities Act regarding sectoral and career pathway strategies include the following:

- elimination of WIA's sequence of services, combining the formerly core and intensive services into a career services category, in which career pathways and sector-based training programs are encouraged;
- requirement of workforce boards to promote proven promising practices, including the establishment of industry or sector partnerships; and
- promotion of integrated or contextualized Adult Basic Education, English as a Second Language, and occupational training.

## **RECOMMENDATIONS AND CONCLUDING OBSERVATIONS**

There is clearly a significant and growing body of solid practice in the sector-based and career pathways fields. Adages such as necessity being the mother of invention, or about the mind-concentrating effects of being hanged in a fortnight, certainly apply when it comes to innovation in the workforce development field over the past few decades. Faced with the need to educate, train, or “upskill” the workforce, whether so workers can advance or so employers can remain competitive (or, ideally, both), programmers and policymakers have developed an array of practices to address the demand for higher-order skills.

However, sector-based strategies and career pathways, while innovative and often effective, speak to the absence of a coherent, adequately

supported national system for ensuring that workers receive the assistance needed to advance in the labor market, and employers are assured that they will have access to a workforce with the skills required to make them competitive.

And while valid arguments could once be made that national competitiveness depended on the education and skills of the workforce, it is difficult to square the tepid investments in workforce development over the past 20 years with the fact that, on average, U.S. economic growth has outpaced the OECD average since the first quarter of 2012, suggesting that the economy has found a way to return to competitiveness postrecession despite underinvestment in its human capital.

This may have been achieved by the shift, predicted by many, toward a smaller, more technically skilled and higher-educated workforce than was required in the past. Technological advances and the offshoring of lower-skilled manufacturing jobs may have translated into structural changes in the labor market not easily remedied by improvements, no matter how innovative, in workforce development programming.

Still, labor shortages in key sectors of the economy persist and, according to some industry leaders, will only get worse in the near future.<sup>15</sup> This suggests that, despite structural changes in the economy, scaling up effective sector-based and career pathways strategies will likely be necessary if the economy is to remain competitive. Few would argue that the country's current high school and postsecondary completion rates are adequate for either a competitive economy or the upward mobility of the workforce.<sup>16</sup>

Moreover, many would likely agree that, for too long, private foundations have carried a disproportionate burden for investing in innovation in workforce development. Bringing these strategies to scale will require a renewed commitment from federal and state government to raise revenue (i.e., reverse the tax cuts handed to the wealthy over the past 30 years) and invest it in programs designed to lift the poor out of poverty and equip them with the education and skills required to live a fulfilling and self-determined life. While politically unpopular, these steps are the minimum necessary to narrow the widening gap between the wealthy and the rest, and to give credibility to legislators' claims that the United States is a country in which prosperity is broadly shared.

In addition, and even less politically popular than either raising taxes or investing in the social safety net, there is the reversal of poli-

cies that have undercut organized labor's ability to represent workers. It should be noted that the education and training that career pathways provides have been an integral part of the apprenticeship system for many decades, and the employer engagement and aggregation of training needs typical of the better sector-based programs have been part and parcel of organized labor's relationship with industry. It should also be noted that those OECD countries that have consistently vied with the United States as most economically competitive, such as Germany, or are currently emerging out of the recession at a faster pace, such as Australia and Korea, rely heavily on good working relationships between labor and industry. Attempting to re-create and bring to scale strategies that have long been a part of a labor contract without organized labor will subject them to politically driven budgeting decisions, rather than decisions about what is best for workers and industry.

Rigorous evaluations have documented that career pathways and sector-based programs can be effective strategies for providing workers with the education and skills required to succeed in the labor market, and for providing employers with a workforce that can keep them competitive. Scaling up these practices is essential to creating the workforce development system of the twenty-first century, but this can be accomplished only if these practices are part of a more comprehensive commitment to workforce development that includes a significantly larger investment on the part of government and, ideally, representation of workers' interests by organized labor.

## Notes

1. For more on the Commonwealth Corporation, see <http://www.commcorp.org> (accessed January 25, 2015).
2. Information about Project QUEST can be found at <http://www.questsa.org> (accessed January 25, 2015).
3. More information about WRTP/BIG Step is at <http://www.wrtp.org> (accessed January 25, 2015).
4. More information about and reports from the JOBS Initiative are provided at <http://www.aecf.org/MajorInitiatives/CenterforFamilyEconomicSuccess/TheJobsInitiative.aspx> (accessed January 25, 2015).
5. For more information about NNSP, see <http://www.insightcced.org/communities/nns.html> (accessed January 25, 2015).

6. Washington State's Skills Panels are described more fully at <http://www.wtb.wa.gov/IndustrySkillPanel.asp> (accessed January 25, 2015).
7. See <http://www.sectorstrategies.org/accelerating-state-adoption-sector-strategies> (accessed January 23, 2015).
8. These data are based on a survey report published by the National Network of Sector Partners (Mangatt 2010).
9. Indiana participated only in the initial stages of the Shifting Gears Initiative.
10. This section draws, in part, on the extended discussion in King (2014).
11. For more information, see <http://www.ntotx.org/home/nto-applauds-governor-perry-for-5-million-investment-in-jobs> (accessed January 25, 2015).
12. See <http://www.wtb.wa.gov/IndustrySkillPanel.asp> (accessed January 25, 2015).
13. Much more information on the latest generation of skills panels can be found at <http://www.wtb.wa.gov/HSHWStrategicFund.asp> (accessed January 25, 2015).
14. Maher and Maher, a New Jersey-based human resources consulting firm, is working with Jobs for the Future, the Ray Marshall Center, and others on this effort.
15. Boeing Airlines Vice President of Human Resources, Alan May, announced at the annual National Fund for Workforce Solutions conference in Chicago on June 27, 2014, that approximately 50 percent of Boeing's workforce was within five years of retirement age.
16. For example, see OECD (2013) and Crellin, Kelly, and Prince (2012).

## References

- Allssid, Julian L., Melissa Goldberg, and Sarah M. Klerk. 2010. *Building a Higher Skilled Workforce: Results and Implications from the BridgeConnect National Survey*. Barrington, RI: Workforce Strategy Center.
- Andersson, Frederick, Harry J. Holzer, and Julia I. Lane. 2005. *Moving Up or Moving On: Who Advances in the Low-Wage Labor Market?* New York: Russell Sage.
- Barnow, Burt S., and Richard Hobbie, eds. 2013. *The American Recovery and Reinvestment Act: The Role of Workforce Programs*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Barnow, Burt S., and Christopher T. King. 2005. *The Workforce Investment Act in Eight States*. Albany, NY: Nelson A. Rockefeller Institute of Government. <http://doleta.gov/reports/searcheta/occ> (accessed November 19, 2014).
- Bradach, J. 2003. "Going to Scale: The Challenge of Replicating Social Programs." *Stanford Social Innovation Review* 1: 18–25.
- Brown, Clair, John Haltiwanger, and Julia I. Lane. 2006. *Economic Turbulence: Is a Volatile Economy Good for America?* Chicago: University of Chicago Press.
- Campbell, Brett. 1994. *Investing in People: The Story of Project QUEST*. San

- Antonio, TX: Communities Organized for Public Service (COPS) and Metro Alliance. <http://www.cpn.org/topics/work/quest1-2.html#ch1> (accessed December 12, 2013).
- Center for Postsecondary and Economic Success at CLASP. 2013. "A Framework for Measuring Career Pathways Innovation: A Working Paper." Washington, DC: Center for Law and Social Policy.
- Crellin, Matt, Patrick Kelley, and Heath J. Prince. 2012. "Increasing College Attainment in the United States: Variations in Returns to States and Their Residents." *Change: The Magazine of Higher Learning* 44(4): 35–41.
- Deaton, Brian, and Robert McPherson. 1991. *Design of Project QUEST*. Austin, TX: Center for the Study of Human Resources, University of Texas at Austin.
- Eberts, Randall W., and Stephen A. Wandner. 2013. "Data Analysis of the Implementation of the Recovery Act Workforce Development and Unemployment Insurance Provisions." In *The American Recovery and Reinvestment Act: The Role of Workforce Programs*, Burt S. Barnow and Richard A. Hobbie, eds. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 267–307.
- Giloth, Robert P., ed. 2004. *Workforce Intermediaries for the Twenty-First Century*. Philadelphia: Temple University Press.
- Glover, Robert W., and Christopher T. King. 2010. "The Promise of Sectoral Approaches to Workforce Development: Towards More Effective, Active Labor Market Policies in the United States." In *Human Resource Economics: Essays in Honor of Vernon M. Briggs, Jr.*, Charles J. Whalen, ed. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 215–251.
- Glover, Robert W., Tara Carter Smith, Christopher T. King, and Rheagan Coffey. 2010. *CareerAdvance®: A Dual-Generation Antipoverty Strategy, An Implementation Study of the Initial Pilot Cohort July 2009 through June 2010*. Austin, TX: Ray Marshall Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs, University of Texas at Austin.
- Hamilton, Gayle. 2002. *Moving People from Welfare to Work: Lessons from the National Evaluation of Welfare-to-Work Strategies*. New York: MDRC.
- Holzer, Harry J., Julia I. Lane, David B. Rosenblum, and Frederick Andersson. 2011. *Where Are All the Good Jobs Going? What National and Local Job Quality and Dynamics Mean for U.S. Workers*. New York: Russell Sage.
- Jenkins, Davis. 2006. *CAREER PATHWAYS: Aligning Public Resources to Support Individual and Regional Economic Advancement in the Knowledge Economy*. Barrington, RI: Workforce Strategy Center.
- Jobs for the Future. 2010. *The Breaking Through Practice Guide*. Boston: Jobs for the Future.
- King, Christopher T. 2004. "The Effectiveness of Publicly Financed Train-

- ing in the United States: Implications for WIA and Related Programs.” In *Job Training Policy in the United States*, Christopher J. O’Leary, Robert A. Straits, and Stephen A. Wandner, eds. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 57–100.
- . 2014. “Sectoral Workforce and Related Strategies: What We Know ... and What We Need to Know.” In *Connecting People to Work: Workforce Intermediaries and Sector Strategies*, Maureen Conway and Robert P. Giloth, eds. New York: American Assembly Press, pp. 209–238.
- King, Christopher T., and Carolyn Heinrich. 2011. “Does Workforce Development Work?” Paper presented to the APPAM Research Conference, held in Washington, DC, November 3–5.
- King, Christopher T., and Tara Carter Smith. 2007. “State Unemployment Insurance-Supported Training Funds.” In *Strategies for Financing Workforce Intermediaries: Working Papers*, Heath Prince, ed. Boston: Jobs for the Future/National Fund for Workforce Solutions, pp. 69–122.
- Maguire, Sheila, Joshua Freely, Carol Clymer, Maureen Conway, and Deena Schwartz. 2010. *Tuning in to Local Labor Markets: Findings from the Sectoral Employment Impact Study*. Philadelphia: Public/Private Ventures.
- Mangatt, Rivinder. 2010. “Sector Snapshot: A Profile of Sector Initiatives, 2010.” Oakland, CA: National Network of Sector Partnerships, Insight Center for Community Economic Development.
- Mikelson, Kelly S., and Demetra Smith Nightingale. 2004. *Estimating Public and Private Expenditures on Occupational Training in the United States*. Washington, DC: U.S. Department of Labor.
- Miller, Cynthia, Johannes M. Bos, Kristin E. Porter, Fannie M. Tseng, and Yasuyo Abe. 2005. *The Challenge of Repeating Success in a Changing World: Final Report on the Center for Employment Training Replication Sites*. New York: MDRC.
- National Commission on Adult Literacy. 2008. *Reach Higher: Overcoming Crisis in the U.S. Workforce*. New York: National Commission on Adult Literacy.
- NGA Center for Best Practices, National Network of Sector Partners, and Corporation for a Skilled Workforce. 2008. *Accelerating State Adoption of Sector Strategies: An Eleven-State Project to Promote Regional Solutions to Worker and Employer Needs, Phase I Project Report*. Washington, DC: NGA Center for Best Practices, National Network of Sector Partners, and Corporation for a Skilled Workforce.
- Organisation for Economic Co-operation and Development. 2013. *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*. Paris: OECD.

- Orr, Larry L., Howard S. Bloom, Stephen H. Bell, Fred Doolittle, and Winston Lin. 1996. *Does Training for the Disadvantaged Work? Evidence from the National JTPA Study*. Washington, DC: Urban Institute Press.
- Roder, Anne, and Mark Elliott. 2011. *A Promising Start: Year Up's Initial Impacts on Low-Income Young Adults' Careers*. New York: Economic Mobility Corporation.
- . 2014. *SUSTAINED GAINS: Year Up's Continued Impacts on Young Adults' Earnings*. New York: Economic Mobility Corporation. May.
- Smith, Tara Carter, and Christopher T. King. 2011. *Exploratory Return-on-Investment Analysis of Local Workforce Investments*. Austin, TX: Ray Marshall Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs, University of Texas at Austin.
- Smith, Tara C., Christopher T. King, and Daniel G. Schroeder. 2012. *Local Investments in Workforce Development: 2012 Evaluation Update*. Austin, TX: Ray Marshall Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs, University of Texas at Austin.
- Strawn, Julie. 2010. *Shifting Gears: State Innovation to Advance Workers and the Economy in the Midwest*. Chicago: Joyce Foundation.
- . 2011. *Farther, Faster: Six Promising Programs Show How Career Pathways Bridges Help Basic Skills Students Earn Credentials That Matter*. Washington, DC: Center for Law and Social Policy, Center for Postsecondary and Economic Success.
- Texas Association of Workforce Boards. 2014. *The Workforce in Texas: Aligning Education to Meet the Needs of Texas Employers*. Dallas: Texas Association of Workforce Boards.
- Zeidenberg, Matthew, Sung-Woo Cho, and Davis Jenkins. 2010. "Washington State's Integrated Basic Education and Skills Training Program (I-BEST): New Evidence of Effectiveness." CCRC Working Paper No. 20. New York: Community College Research Center, Teachers College, Columbia University.

