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Skills to Sustain Rural Economies

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FACING THE CHALLENGES

Rural economies and prosperity depend on the skills and knowledge of their workforces and thus on their public schools. In the past, less than 12 years of education, supplemented by tacit knowledge acquired from colleagues, family, and friends, was sufficient to sustain rural economies, whether dependent on agriculture, mining, industry, or services. But that economic reality no longer exists for most of rural America. Markets and workplaces have been transformed by global competition, digitalization, and automation, dramatically altering the skills, knowledge, and work habits needed and expected of rural businesses and employees. Today, about 63 percent of the workforce requires some postsecondary education. This poses a serious challenge for rural areas—particularly in the South and Appalachia—that in the past have produced low levels of academic attainment and achievement.

The challenges rural workforce development faces include the loss of former sources of employment; an aging population with relatively low levels of education and limited experience to prepare them for a more highly skilled and often digitized workplace; population density that limits choices of programs that can be offered; and the absence of a national system of education or workforce development needed to devise, improve, and/or fund programs to improve rural workforce development. In 2014, about one in four nonmetro businesses—as compared to one in six metro businesses—reported a “very difficult time finding workers,” attributing it primarily to the quality of the rural labor pool (Economic Research Service 2014, n.p.).

By providing the right balance of high-quality education and workforce development, rural regions have the potential to influence, not just react to, economic changes. Reaching that goal, however, will require

raising levels of skills, knowledge, creativity, and entrepreneurship; balancing workforce programs among current workforce needs, the forms of economic growth they want, and the long-term interests of students; and treating education and training as quasi-public investments benefitting both individuals and communities by providing support to overcome diseconomies of scale, lack of wealth, and past educational deficiencies.

THE INSTITUTIONAL FRAMEWORK

The primary responsibility for ensuring that rural residents have the skills and knowledge to earn a living rests with their public schools. Students are exposed to career choices in the middle schools and can choose a career or academic track when they begin high school. Now that living-wage jobs require high-level skills, deeper knowledge, and creativity, many learners continue on to a two- or four-year college. Businesses also provide training, although much less than in the past, and nonprofits provide a wide range of support services, especially for disadvantaged populations.

Career and Technical Education in the High Schools

Over most of the twentieth century, vocational education provided the job skills rural economies needed. Today a quarter of the nation's students, a third of its schools, and more than half of its school districts are designated as rural (National Center for Education Statistics 2017). Throughout most of the twentieth century, rural high schools sorted students into one of three categories: academic (college bound), vocational (job bound), and general (left out and most likely to drop out) (Bowles and Gintis 1976). Vocational students were those most likely to stay and work in or near their communities and formed the core of the rural labor force. Beginning in the 1960s, most rural school districts, with federal support, established area vocational centers serving multiple schools. This further separated students from their academic counterparts.¹ Federal legislation also encouraged high schools to serve adult learners through adult basic education and short-term postsecondary adult vocational education.

Contemporary vocational education, however, has changed fundamentally in content, rigor, and goals to match the rising skill demands of work and higher aspirations of students. The term *vocational* education itself has now been replaced by *career and technical education* (CTE).

Modern CTE is more than a path to immediate employment; it is an alternative pedagogy for rural students who learn better experientially than theoretically and aspire to college. The Carl Perkins Act of 2006, the federal legislation supporting school-based workforce preparation, states the new goal of CTE as “the development of services and activities that integrate rigorous and challenging academic and career and technical instruction, and that link secondary education and postsecondary education for participating career and technical education students” (Carl D. Perkins Act of 2006). This represents the most fundamental change in school-based workplace development policy since its initial federal support, the Smith-Hughes Act of 1917. In 2014, for example, as many of Mississippi’s CTE students as non-CTE students enrolled in postsecondary education after graduation—about 60 percent (Mississippi State University 2014).

After exploring different career pathways in grades 8–10, in eleventh grade a CTE student selects one of the 16 career clusters and a career path within it. Those who choose to “concentrate” on a CTE career, which means enrolling in three high school classes in that concentration, represent about 19 percent of all high school students. Many other rural students, however, elect CTE classes that allow them to develop specific talents or to explore career interests. CTE courses in digital media, culinary arts, computer and information sciences, environmental science, and auto mechanics, for example, draw large enrollments among nonconcentrators.

Continuing on to Postsecondary Education

In the 1980s low-tech rural employers began to realize they needed to modernize to stay in business (Rosenfeld, Malizia, and Dugan 1989) and that this would require more technically skilled workers than the employees their high schools were producing (Rosenfeld 1986). Responsibilities for developing that skilled and innovative rural workforce soon shifted from secondary vocational education to prebaccalau-

reate postsecondary institutions. Community, junior, and technical colleges effectively replaced the postsecondary adult vocational education once offered in high schools, expanding and increasing their emphasis on applied associate of science (AAS) degree programs, on one-year certificates, and industry certifications, all aimed at immediate employment. Two-year colleges, which can be much more closely integrated with and responsive to rural development than public schools can, have become industry's preferred sources of both rural employees and customized training.

By the end of the 1980s, community colleges were leading rather than responding to technological change in many rural areas. Many established advanced technology centers to demonstrate to small and mid-sized enterprises the benefits of new production technologies and techniques used by competitors across Europe and Japan (Office of Technology Assessment 1990; Rosenfeld 1995).

Community colleges soon became accessible to even the most distressed counties, viewed as perhaps Appalachia's "best-kept secret" (Baldwin 1996). The South's Consortium for Manufacturing Competitiveness, the Ford Foundation-supported Rural Community College Initiative, and, later, the Rural Community College Alliance (RCCA) led the way. They encouraged and spread innovation and promoted the economic development value of rural colleges (Rubin 2001).

It was the responsibility of each state to see that every rural citizen had access to a community college, but states differed widely in the organization and autonomy of their colleges. They all, however, attempted to reach rural and isolated counties, sometimes using branch campuses supplemented by online instruction to deliver programs. The RCCA estimates that 589 of the nation's 1,604 degree-granting two-year colleges serve rural populations, and that rural students travel on average about 50 miles round trip to attend. The average age of a community college student is 28, and 63 percent are part-time students (American Association of Community Colleges 2018). Substantially smaller than the mega-campus that serve large metro areas, rural colleges are unable to offer students as many specialized career options.

Other Sources of Workforce Development

The U.S. Department of Labor (DOL) provides various training programs linked to employment in selected industries or for older, dis-

advantaged, and displaced workers. The Trade Adjustment Assistance Act, for instance, provides retraining in areas hit by plant closings, and the Employment and Training Administration's Migrant and Seasonal Farmworkers programs alleviate chronic seasonal unemployment and underemployment. The DOL's flagship apprenticeship program is closely aligned with organized labor and thus weaker in rural areas where unions are scarcer. Workforce investment boards help rural citizens learn about and access training, job search, and assistance.

In the not-too-distant past, employers were leading sources of workforce development. But price competition and lessened employee loyalty have cut into employers' investments in training. A 2011 survey found that only about one in five employees had received any training in the past five years (Cappelli 2012).

Nonprofits, mainly supported by foundation or federal grants, provide needed support services and information related to workforce development. The New Opportunities Vision and Achievement Workforce Development Institute of Northeast Louisiana, for example, is a workforce intermediary funded by the Mary Reynolds Babcock Foundation that connects employers' workforce needs with potential employees and helps move participants to living-wage careers.

EDUCATING FOR WHAT?

Rural workforce development programs today must walk a fine line between responding to current labor market demands while also preparing for emerging but more uncertain career opportunities. Formal systems are oriented mainly toward the current needs of employers, relying heavily on official labor market projections supplemented by information from existing employers.

The future, however, is unlikely to mimic the past. Dabson notes the impacts of the confluence of digitalization, automation, artificial intelligence, globalization, and geographic mobility on rural labor markets. One study projects that 47 percent of U.S. jobs are at high risk because of automation (Frey and Osborne 2013), which is already disproportionately affecting rural manufacturing and mining sectors and undereducated rural workers. What are the best hopes for rural people in the future?

Declining—But Still Hiring

Despite the economic upheavals of rural economies over recent decades, government, manufacturing, retail trade, health care, and accommodations/food services still make up almost half of the nonmetro employment. Proprietorships in nonmetro counties—self-employed, freelancers, independent contractors—represent more than 26 percent of total employment, or about one in four, likely much higher if part-time supplemental incomes were included.

Manufacturing, once the centerpiece of rural development, now represents only 13.5 percent of nonmetro employment, and only about half in direct production occupations. Fifteen of the 20 occupations projected to most rapidly decline are in manufacturing (Krause and Sawhill 2017). Rural job growth in retail trade, once boosted by regional malls and national chain stores, now is under siege from e-commerce and overnight delivery. Government remains a major source of rural employment but also is at risk, owing to consolidation and budget reductions.

New and Promising Career Paths

The most effective rural planners today take creative approaches to development. Many successful communities have found ways to differentiate and brand themselves to attract talented individuals and innovative small enterprises seeking lower costs, recreational or cultural amenities, and/or more family friendly environments. This often involves revitalizing main streets and sprucing up greenways, developing their own “experience economy.” Some places have turned to economic gardening, encouraging and supporting local entrepreneurs and small enterprises, for example, those targeting markets associated with mobile devices and/or changing consumer values and tastes. Examples of industries with potential for rural development and careers include the following:

- App sales were \$88 billion in 2016 and projected to double by 2020, and the gaming industry is expected to grow to almost \$20 billion by 2020 (Takahashi 2015).
- High value added and local agriculture is expanding, from medicinal herbs to organic vegetables to artisanal spirits.

- Health care, already a large rural employer, is expected to grow even faster, as is alternative and complementary health, a \$40 billion market in 2015 (Grand View Research 2017).
- Solar photovoltaic installers and wind turbine service technicians are projected to be the two fastest growing occupations, approximately doubling between 2016 and 2026 (Bureau of Labor Statistics 2018).
- Creative industries and occupations (e.g., arts and crafts, culinary arts, film and media, design, and cultural heritage) currently represent from about 3 to 8 percent of all employment in rural regions, including many who are self-employed or freelancers.²
- Tourism, fueled by changing spending habits from “things” to “experiences,” can lead to high-skilled jobs and entrepreneurship; however, they are often viewed by schools only in terms of its low-income and part-time employment.

Many of these emerging sectors and occupations, however, are not yet recognized or adequately defined by current industry or occupation classification systems, and their qualifications/skill sets are not adequately understood or defined. Many require talents not easily measured by standardized tests, and success can depend as much on reputation, connections, and portfolios demonstrating experience as much as credentials.

Restructuring Work

The way rural work is configured also is changing. The five-day, 9-to-5 jobs that had been the norm for most careers are being replaced with alternative work arrangements (e.g., independent contractors, on-call workers, temporary agency workers, freelancers, home-based work). The Bureau of Labor Statistics found that in 2005 30 percent of the workforce participated in atypical arrangements, and recent research found that the number in alternative work arrangements rose to 9.4 million from 2005 to 2015—more than the rise in total employment in the United States (Katz and Krueger 2015).

Changing Expectations

The career interests and values of millennials are different from those of past generations. Many are less willing to give up their autonomy for structured work environments and are more likely to aspire to self-employment. About 27 percent already are self-employed, and 70 percent fully expect to own their own business someday. Residents of even the most isolated rural communities now are hyper connected, use mobile devices, and are part of social networks (U.S. Chamber of Commerce Foundation 2016).

BUILDING BLOCKS OF A RURAL WORKFORCE DEVELOPMENT SYSTEM

Because rural workforce development programs have fewer resources for education or options for employment, they must allocate their resources more wisely. That requires good labor market information for schools to design curricula and for students to choose career paths. Rural programs may have to choose breadth over depth by offering flexible career options over specialization. And given the increasing incidence of career changes and demand for higher skill levels, every program must ensure clear pathways to further education.

Accessing Labor Market Information

Projecting industries and occupations is particularly challenging for rural areas. Access to up-to-date and accurate labor market information (LMI) is the foundation of credible workforce development (WFD) programming, curriculum development, and staff planning efforts. Standard industrial and occupational classifications and skill needs are based on information gathered in the past. Although LMI has advanced considerably and now includes real-time information based on current job postings, these data are far from perfect.

New and emerging industries and occupations generally take years before they are recognized, understood, and classified by government systems. Staffing patterns and job responsibilities can be different from

those used to project demand, especially in sectors dominated by small employers where workers are assigned multiple and often changing responsibilities. Information on contextual occupational skills associated with industries is even more difficult to find (Committee on the Supply Chain for Middle Skill Jobs 2017, p. 106). Further, occupations and sectors dominated by freelancers or individual contractors have unrecognized economic potential and student appeal and therefore are undervalued as career paths. Collecting useful data in rural areas depends on intimate knowledge of all dimensions of their economies and the skills that drive them.

Effective Counseling and Accessible Student Services

Choosing a career path and navigating that path can be challenging, particularly for rural students who often are the first in their family to enter postsecondary education. Many look to counseling services for advice, which frequently are underfunded and understaffed. Rural schools typically have only one full-time counselor, and that person is likely to know more about academic programs than careers.

Some schools expect CTE teachers to also serve as counselors, but too many have insufficient training or time to acquire the knowledge they need to advise students. Thus, students may turn to the Internet and standard printed materials to learn more about career pathways.

Rural adults trying to reenter the labor force or start a new business can access information and advice about jobs and training opportunities from American Job Centers. Part of the Department of Labor's Workforce Innovation and Opportunity Act, the centers often partner with nonprofits to provide services.

Choosing Career Pathways, Constructing Programs

Students entering career and technical education programs must eventually choose a career pathway. To help, the U.S. Department of Labor has organized careers into 16 general clusters and each of those into a subset of dozens of specializations. For example, the agriculture, food, and natural resources cluster includes animal breeders, environmental engineers, geological sample technicians, and tree trimmers and pruners among its 55 different career paths.

Each educational institution must select a limited number of programs to offer based on local labor markets, student interests, and, often more importantly, availability of qualified teachers, and resources. Rural students typically have fewer options from which to choose, especially at the secondary level where only more generic career pathways can be offered in the limited CTE class time available. In some instances, distance learning can fill gaps, but the more experiential the content, the more difficult that becomes. And research suggests that online education is least effective with less-prepared students (Bettinger and Loeb 2017).

Ensuring Access to Higher Education and Lifelong Learning

Postsecondary education today is to workplace readiness what high school was in the past. To embark on any skilled career path, one now needs some postsecondary education, whether an associate degree, certificate, or industry certification. Rural schools must facilitate that transition. Some develop articulation agreements with colleges to ensure acceptance of graduates. The Tech Prep or “2+2” program pairs the district high schools with the college to ensure the student has the prerequisites to enter college. In Mississippi, some secondary career centers are located on community college campuses to facilitate transfer.

The most popular and widespread program to encourage postsecondary education is dual credit/concurrent enrollments, whereby a high school awards college credit to successful high school completers who meet college criteria. To date this has been more often used for academic than career education credits, but that is changing as more career courses develop and colleges accept certification standards. Further, a growing number of community colleges are now offering baccalaureate degrees in selected programs generally not available at four-year institutions.

SKILLS TO DRIVE RURAL ECONOMIES

The skills and knowledge required for living-wage jobs have changed dramatically. At the top of most lists are STEM (science,

technology, engineering, and mathematics) skills. But employers also expect soft skills, for example, the ability to identify and solve problems, work in teams, communicate clearly, and use computers. At the same time, however, employers are investing less in job-specific training than previously, putting that burden on the schools, too.

Efforts to develop a workforce that supports and drives growth have led to some of the areas of general agreement described below (Committee on the Supply Chain for Middle Skill Jobs 2017). Effective programs combine work-based with classroom-based learning and academic knowledge and creativity with pure job skills; they also include all aspects of an industry and an emphasis on entrepreneurial skills.

Integrating Work-Based Learning

This is particularly important in rural areas where undereducated older populations may be better suited to experiential learning. Despite recurrent interest in it, work-based learning (WBL) has been difficult to support in rural areas. Few businesses are willing to pay the costs or dedicate the staff time required. American industry lacks the associational framework, traditions, and peer pressures that make European apprenticeships so successful. Rural regions have fewer of the large-scale employers that are most likely to support WBL. The most notable exceptions are communities that have attracted European companies that already value apprenticeships, as in Seneca, South Carolina (Mangam 2012), and Central Piedmont, North Carolina (North Carolina Department of Commerce 2017).

To overcome the lack of WBL positions, many rural CTE programs create simulated school-based work settings for students, either on campus or in cooperation with a public agency or nonprofit. MakerSpaces and Fab Labs are two of the latest production settings where simulated businesses and start-ups can take advantage of low-cost desktop 3D printers and desktop computer-aided machining equipment.

Merging Career and Academic Curricula

The integration of career and college preparedness represents the most significant and perhaps the most important change from the traditional vocational and later career and technical education programs. One

approach is through multidisciplinary teaching, by developing team-taught curricula for students from different disciplines that demand skills and knowledge spanning technical/career skills and liberal arts.

One of the most successful models for this is the career academy, an institution focused on a specific industry or set of industries. The Academy of Culinary Science & Fashion Enterprise in Thomasville, North Carolina, is one example. Mississippi, which lacks the population density for a narrowly focused academy, is attempting to adopt national standards for career academies but combine multiple pathways such as engineering, STEM, and health care or culinary and hospitality.

Teaching “All Aspects of the Industry”

The goal of incorporating “all aspects of the industry” (AAI) into rural career and technical education was to give students a broader understanding of their region’s core industries, the context of the business in which they may later be employed. This was intended to provide an applied context for other basic skills, increase future job flexibility and advancement opportunities, and encourage entrepreneurship.

Teaching AAI—a goal of federal legislation since 1984 originally based on the success of vocational agriculture—matches labor market needs expressed by cluster- and sector-based organizations for employees who understand not only the immediate job skills but the broad industry context and upstream and downstream implications of the work they perform. The smaller and less specialized the business, the greater the need for broad-based skills.

Infusing Entrepreneurial Skills

As the externally owned employment base of rural economies contracts, communities will become increasingly dependent on their abilities to grow new businesses by attracting entrepreneurial talent and to develop it from within. Proportions of self-employed people are already higher in rural than in metro counties. More than 20 percent of the rural workforce is self-employed or a freelancer/contractor (Goetz 2008); this number is likely to increase as millennials become less interested in traditional work settings (U.S. Chamber of Commerce Foundation 2016).

Career education has an important role to play in rekindling the entrepreneurial spirit in rural communities. Schools could either treat entrepreneurship as a distinctive career path or integrate it into existing curricula, increasing the chance of delayed entrepreneurial behavior. The first is the choice of many entrepreneurship education advocates. But it may ultimately be less effective than the second, which assumes that most future entrepreneurs will seek employment to gain experience, confidence, and connections before identifying and developing entrepreneurial opportunities. One of the early and most successful rural programs is REAL (Rural Education through Action Learning) Enterprises. Students from various programs plan, establish, and operate a business as part of their education and, if appropriate, spin it out as a full-time business.

MODIFYING WORKFORCE DEVELOPMENT TO NURTURE RURAL ECONOMIES

What can help rural communities better prepare the workforce they need to sustain and grow their economies? Because there is no national system or mechanism for broad-based change and the federal government contributes a relatively small share of the costs of WFD, it has minimal leverage. Innovation generally has been bottom up, moving from local successes to state policy to replication across states. Meaningful reform is more likely to emerge from regional and collaborative planning—among educational institutions, business and labor associations, community-based organizations, and government agencies—and state support. The following suggestions represent reforms likely to improve a region's rural economy and the well-being of its citizens via the skills and talents of its workforce, including, in particular, those that are older, poorer, and less educated than their urban counterparts.

- **Treat workforce development as a quasi-public good.** Community leaders may consider taking a more active role in providing information about changing skill needs, offering work-based learning opportunities, participating in planning efforts, and ensuring adequate support for less-advantaged students and displaced workers.

- **Match programs to emerging occupations and interests.** Timing is crucial, but it is difficult for rural schools to find qualified teachers and meet state approval processes and to update or add programs. They may have to make programmatic choices in advance of the labor market data to support them. Some innovative schools and teachers have circumvented system delays by reconfiguring existing curricula to include new skills.
- **Support and reward innovation.** Rural faculty and administrators have insufficient release time, resources, and/or rewards to learn about, develop, and assess innovations. Social media helps but cannot replace informal personal interactions or observations. Mini-grants and/or release time to develop and assess innovative methods and curricula; support for travel to events related to areas of expertise; and collaborative projects across schools, states, and even countries can lead to improved outcomes.
- **Engage with employers and community.** Federal legislation already requires career programs to establish advisory councils to help identify skills needed or anticipated and to review curricula. The best career programs also provide WBL opportunities, access to specialized resources, and employment opportunities. But broader community participation is important with respect to emerging careers and entrepreneurial education and for providing community-related, work-based learning projects.
- **Educate for a flexible and innovative workforce.** Given the rate of change in the workplace and career mobility within the workforce, breadth is more important than depth in workplace learning. Employers want more flexible and innovative employees who do not just solve problems but recognize them before they become a problem.
- **Contextualize education and training.** A proven way to engage both young nontraditional learners and older learners reentering the labor force is to make lessons as relevant as possible to their lives and experiences. Everything from remedial and English-language education to workplace skills can be taught in the context of real situations that they can relate to, where possible drawing on a dominant regional industry or business for the setting.

- **Reward experience.** It is not realistic to expect older workers with family and financial responsibilities and inadequate formal education to complete a full two-year associate degree program. Many, however, may have experiences that might meet competency-based standards and be certifiable (Ganzglass, Bird, and Prince 2011). Rural areas would benefit from formalized processes that recognize nonformal education.

Notes

1. Vocational agriculture was the exception, remaining in the comprehensive high school because of its broader focus on academic, farm management, and personal skills.
2. Based on research studies of creative economies in rural regions across eight states that were directed or codirected by the author between 2001 and 2016 using data from EMSI, the U.S. Census Bureau, the Bureau of Labor Statistics, and industry associations.

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