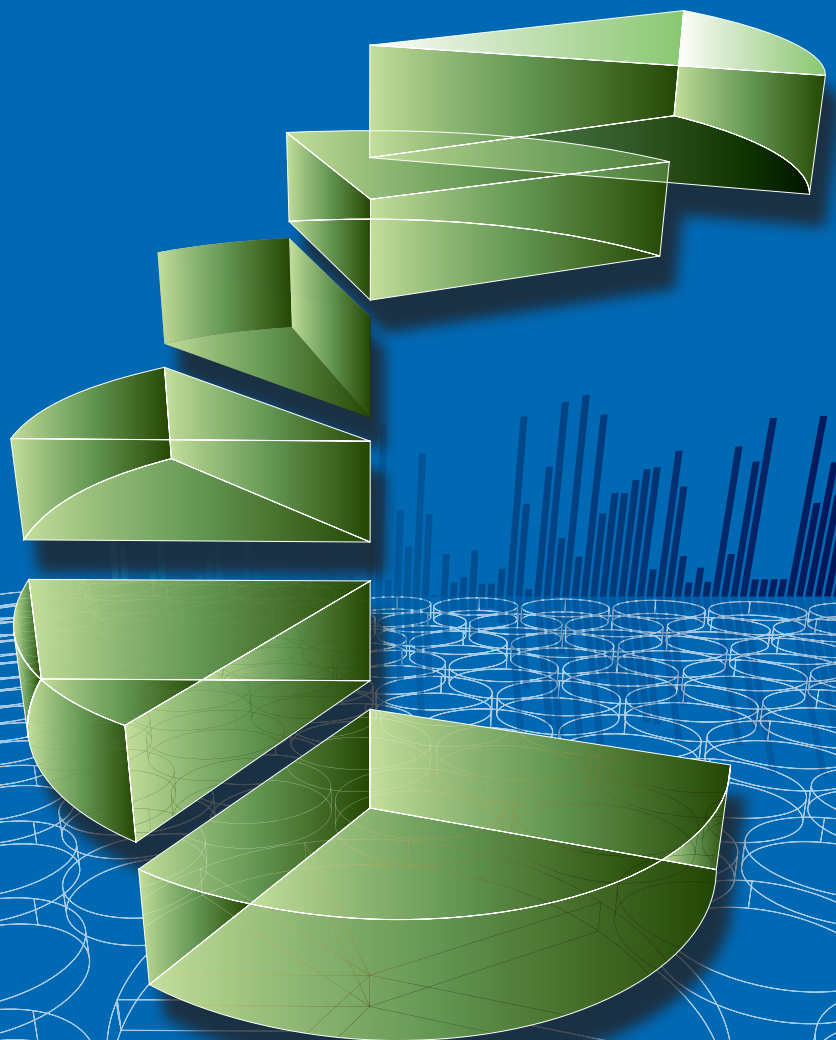


Moving Success From the Shadows: Data Systems That Link Education and Workforce Outcomes

Christopher M. Mullin and Anna Lebesch



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CONTENTS

Executive Summary	4
Introduction	6
1. Linkages Between Education and Workforce Data Collection Proposed in Federal Legislation	6
State Longitudinal Data Systems	6
Performance Measures for Federally Funded Programs	7
2. Data Sources for Workforce Outcomes of Educational Pursuits	8
Unemployment Insurance Programs	8
Other Programs and Databases	8
Discussion	9
Proposed Linkages	9
The Current State of Data Collection	9
Policy Implications	10
Notes	11

Introduction

The need for better data on the performance of higher education has become a major focus of education policymakers, and this has been reflected in federal legislation. Community colleges are appropriately held accountable for the workforce outcomes of their students, but the data that are gathered to evaluate those outcomes must reflect the post-college occupational experiences of their students: child-care providers, engineers, nurses, general contractors, and members of the armed forces. To better understand the current state of linkages between education and workforce outcomes, we examined the following:

1. The assumptions federal legislation makes about linkages between education and workforce outcomes and the data needed to document those outcomes.
2. How well current data collection systems capture the workforce outcomes of educational pursuits.

Linkages Between Education and Workforce Data Collection Proposed in Federal Legislation

The U.S. Department of Education and Department of Labor have a variety of programs designed to use individual student data to examine the workforce outcomes of students who complete educational programs. However, most of these statewide student-level data systems have been focused on K–12 education, with explicit funding for state education agencies. Federally funded programs have collected individual-level data on postsecondary workforce outcomes to measure performance relating to employment placement, retention, and earnings; however, not all data are adequately available to participating community colleges.

Data Sources for Workforce Outcomes of Educational Pursuits

All states currently collect individual-level workforce data for those program participants who work for an employer through unemployment insurance systems. In some instances, individual-level unemployment insurance data are shared between agencies in a state and are shared between states through the Wage Record Interchange System (WRIS) data-sharing agreement. Workforce data for federal employees, including military personnel, are also collected and shared with states to meet federal reporting requirements via the Federal Employment Data Exchange System (FEDES). Unfortunately, institutional access to these data is limited, placing a considerable and unnecessary burden on institutions.

A further limitation to the evaluation of postsecondary education programs is that, while state and federal systems collect individual-level data for those who work for an employer or government entities, those who are self-employed are not included in these data systems. In 2007, some 21.7 million people worked in fields such as veterinary services, accounting, general contractors, specialty trade contractors, health practitioners, social workers, machinery repair, and engineering.

Policy Implications

The use of data to make decisions is at the core of an accountability culture. The federal government has encouraged the collection of individual-level data to inform policy decisions about education and workforce preparation. These advancements, in addition to numerous data systems and interstate partnerships, contribute greatly to our ability to understand the link between college and career readiness, but much more needs to be done. If we want to create data systems that inform students, parents, employers, and the community while improving educational practice, strong longitudinal data systems must be developed and utilized in ways consistent with a variety of both programmatic and educational objectives. Addressing the limitations identified in this brief would signify a substantial step forward.

Before the workforce outcomes of educational pursuits can be comprehensively analyzed, the following activities or policies need to receive further attention.

- 1. Encouraging the establishment of postsecondary longitudinal data systems.** Nearly half a billion dollars either has been spent or is pending distribution to SEAs for the expressed purpose of building longitudinal data systems based on student-unit records. While the Higher Education Opportunity Act of 2008 and the proposed American Graduation Initiative (AGI) encourage the establishment of postsecondary education data systems, the funds have yet to be provided (and AGI is not yet authorized).
- 2. Providing colleges with access to data.** Federal and state legislation need to explicitly authorize providing necessary and appropriate workforce-related data to colleges and their representing agencies, if applicable, while ensuring adequate privacy protections. The substantial institutional reporting burdens associated with federal programs would be greatly reduced if colleges were given the ability to more fully interact with existing data systems and exchange partnerships that track individual workforce outcomes.

3. Collecting comprehensive employment data.

Collecting individual-level education and workforce outcome data across various state and federal departments, agencies, and partnerships must somehow take into account the role that individual choice plays in a given career path as well as the fact

that, currently, employment data are not available for all categories of employment. Thus, collecting data that truly reflect occupational success for any given trainee is an immensely complicated issue that merits further analysis.

MOVING SUCCESS FROM THE SHADOWS: DATA SYSTEMS THAT LINK EDUCATION AND WORKFORCE OUTCOMES

Introduction

The need for better data on the performance of higher education has become a major focus of education policymakers. Substantiating the success of postsecondary education entails providing evidence of workplace outcomes in addition to students' attainment of certificates, degrees, or credentials. The recent focus on the relationship between education and workforce preparation is different than that in previous years in that there is now a call for collecting data on a broad, statewide scale as a means to gauge educational outcomes. This is clearly reflected in federal legislation. If community colleges are to accurately gauge and be held accountable for the workforce outcomes of their students, certain data are necessary. To better understand the current state of linkages between education and workforce outcomes, we examined the following:

1. The assumptions federal legislation makes about linkages between education and workforce outcomes and the data needed to document those outcomes.
2. How well current data collection systems capture the workforce outcomes of educational pursuits.

Initially we conducted this inquiry by analyzing source documents, including federal legislation, program descriptions, technical manuals, and other publications developed by or related to the programs under review. Then we verified the accuracy of interpretations of these texts through conversations with program administrators and others familiar with the nuances of the relevant federal policies.

1. Linkages Between Education and Workforce Data Collection Proposed in Federal Legislation

State Longitudinal Data Systems

Legislation has been enacted to enable the U.S. Department of Education to aggressively support the development of statewide, student-unit record systems. Four federal acts, in particular, have shaped this emerging policy thrust.

The Education Technical Assistance Act of 2002¹ introduced competitive grants for states to develop longitudinal data systems based on student-unit records. These Statewide Longitudinal Data Systems (SLDS) grants, administered

by the Institute of Education Sciences, were available for FY 2006, 2007, and 2009.² The focus of the grants was to develop systems for gathering longitudinal data

Table 1.
Data Elements Required by the America COMPETES Act of 2007

Preschool to Postsecondary Education
Unique statewide student identifier.
Student-level enrollment, demographic, and program participation information.
Student-level information about the points at which students exit, transfer in, transfer out, drop out, or complete P-16 education programs.
The capacity to communicate with higher education data systems.
State data audit system assessing data quality, validity, and reliability.
Preschool to Grade 12
Yearly test records of individual students.
Information on students not tested by grade and subject.
A teacher identifier system with ability to match teacher to student.
Student-level transcript information, including courses completed and grades earned.
Student-level college readiness test scores.
Postsecondary Education
Information on the extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial course work.
Other information determined necessary to address alignment and adequate preparation for success in postsecondary education.

Source: Public Law 110-69 § 6401 (e)(2)(d)

on K–12 students. Only state education agencies (SEAs) were eligible to receive funding; most are K–12 agencies.³ Grant applications included 21 requirements, and only one mentioned a potential link between K–12 and postsecondary education. In the first three grant rounds, a total of \$265 million was allocated to SEAs in 41 states and the District of Columbia.⁴

Building on the foundation created by the SLDS grants, the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act of 2007 (America COMPETES Act)⁵ was designed in part to “promote more accountability with respect to preparation for higher education, the 21st century workforce, and the Armed Forces.”⁶ The legislation outlined the elements to be included in federally funded state longitudinal data systems, focusing on student-level data (see Table 1). Eligibility was extended beyond SEAs to allow statewide partnerships that included additional stakeholders, including at least one representative of a public community college. At least one representative from the business community and one from the armed forces were required as partners. Appropriations were not provided for the data systems proposed under this grant; however, the elements outlined in Table 1 have become required in subsequent federal legislation.

The Higher Education Opportunity Act of 2008 (HEOA)⁷ prohibited the development of a federal data system that tracked individual students over time.⁸ This prohibitive language, in part a response to a feasibility study by the U.S. Department of Education to test a potential national higher education unit-record data system,⁹ was aggressively supported by private colleges and privacy advocates. The prohibition was not extended to states; in fact, HEOA authorized a pilot program to support up to five states in the development of state-level, postsecondary student-unit record systems.¹⁰ However, to date, funds have not been appropriated for this purpose.

Three parts of the American Recovery and Reinvestment Act of 2009 (ARRA)¹¹ encouraged the development of student-centered longitudinal data systems. First, the State Fiscal Stabilization Fund (SFSF) program provided funds to states on the conditions that they

1. Maintain levels of support for education in FY 2009 to 2011 equal to that of FY 2006.
2. Achieve equity in the distribution of teachers with respect to student body composition and teacher quality.
3. Collect the data specified in the America COMPETES Act.
4. Improve K–12 assessments and include all populations in testing.
5. Support struggling schools.¹²

The third condition—collecting the data specified in the America COMPETES Act—marked a major development in federal higher education data collection policy, even if federal collection efforts themselves were not affected. Also of great significance, ARRA provided \$245 million to states, on a

competitive basis, to develop these systems.¹³ As with the SLDS grants, SEAs were the only entities eligible to compete for the grants, replacing the more inclusive statewide partnership as outlined in the America COMPETES Act.¹⁴

In addition, ARRA also included state incentive grants, known as the Race to the Top fund grants, which included \$4.35 billion to states to encourage innovation and reform. This competitive grant program prioritized proposals that aligned data from multiple agencies. As with the America COMPETES Act, the program did not distribute funds specifically for the purpose of developing or maintaining a longitudinal student-unit record system. However, proposals did have to meet the data requirements set forth in the America COMPETES Act and the other four conditions of the SFSF grants, which is essentially the same thing. Additionally, of the portion of \$4.35 billion yet to be distributed, local education agencies were able to receive 50% of the funds awarded to a state.¹⁵

Performance Measures for Federally Funded Programs

While federal legislation promoting statewide longitudinal data systems continues to foster the collection of student-level data, legislation focused on workforce education also has included performance measures to evaluate funded programs. The two primary federal workforce education and training programs are the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins Act)¹⁶ and the Workforce Investment Act of 1998 (WIA).¹⁷

The Perkins Act was designed with a focus on developing the academic, career, and technical skills of secondary and postsecondary students. Five core indicators of performance for postsecondary students in these programs include attainment of (1) career and technical skills; (2) an industry-recognized credential, certificate, or degree; (3) retention in or transfer to a bachelor’s degree program; (4) placement into the military or apprenticeship programs or placement and retention in a job; and (5) employment in nontraditional fields.¹⁸

The Workforce Investment Act overhauled the previous federal workforce investment system. A variety of performance indicators were included in the legislation to gauge the effectiveness of the authorized state and local workforce development systems. While the indicators differ slightly depending on the type of participant, outcomes shared across participants include unsubsidized employment; earnings; completion of a recognized credential (degree, certificate, or industry certification); and, for minors aged 14 to 18, placement and retention in military service. Some of the data were designed to be used in the approval of higher education training programs for WIA eligibility.

Reflecting the current focus on data systems, the Employment and Training Administration of the U.S. Department of Labor has created the Workforce Data Quality Initiative under authority provided by WIA.¹⁹ The purpose of this initiative is to support the integration of workforce and

education data. The FY 2010 omnibus appropriations bill passed in December 2009 included \$12.5 million for this initiative, with competitive grants to be announced early in 2010.²⁰

2. Data Sources for Workforce Outcomes of Educational Pursuits

Unemployment Insurance Programs

Unemployment compensation programs were created by the Social Security Act of 1935.²¹ These programs are federal and state partnerships, with the federal government providing broad outlines for the programs and states retaining control over criteria including, but not limited to, eligibility for unemployment insurance and the amount and duration of benefits.²² Data collected by state workforce agencies are used to determine unemployment benefits. At a minimum, these data include the employee's social security number, quarterly earnings, and a unique code for the reporting employer.²³ In addition to their role in providing information in the determination of unemployment insurance benefits, these data are also useful for understanding earnings, wage, and

other workforce information.²⁴

There are two national programs that track workers across state boundaries. The first is the Wage Record Interchange System (WRIS) created by the U.S. Department of Labor to facilitate the identification of out-of-state workers through unemployment insurance. WRIS makes it possible for participating states to share wage data for people who have participated in workforce investment programs so that they can identify which programs these people participated in and use these data to evaluate the effectiveness of the training providers. Currently all 50 states and the District of Columbia participate in WRIS.

The second program is the National Directory of New Hires (NDNH). This database includes unemployment insurance data, quarterly wage data from state and federal agencies, and information from the W-4 forms of new hires. Operated by the Office of Child Support Enforcement of the U.S. Department of Health and Human Services, NDNH was developed to assist state child support agencies with enforcing child support orders and locating parents.²⁵ The collected data may be shared with other federal and state entities for prescribed reasons, one of which allows the secretary of education to utilize the information for those who default on federal loans or overpay on grants. While these systems are comprehensive, there are certain criteria to determine who is covered; four questions must be answered in the affirmative (see Figure 1).²⁶ People not covered by unemployment insurance systems include federal, military, and postal employees; the self-employed; and those in several other occupations.²⁷

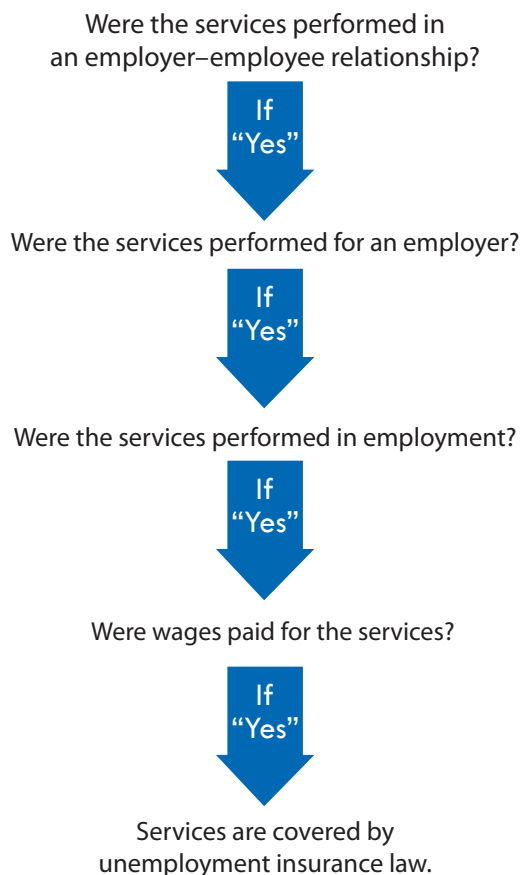
Other Programs and Databases

Federal, armed forces, and postal service employees. Unemployment insurance information for people employed by the federal government, armed forces, and postal service are not necessarily collected by states. However, a project funded by the U.S. Department of Labor's Employment and Training Administration created a data exchange including three federal agencies: the Office of Personnel Management, the Department of Defense's Defense Manpower Data Center, and the U.S. Postal Service. The resultant Federal Employment Data Exchange System (FEDES) matches—it does not warehouse—quarterly, individual-level data for most but not all federal employees from these three agencies in order to help participating states with their federal reporting requirements.²⁸ Currently 42 states participate in the data exchange. Because these people may not be included in state unemployment insurance data systems, FEDES serves an important role in collecting data on outcomes of educational participation, while allowing participating states to track graduates outside their states.

Self-Employed. Partially because of the difficulty of determining whether in a given week a self-employed worker is unemployed, as well as variability in state laws with respect to classifying an occupation as self-employment, these people are not included in state unemployment insurance data systems.²⁹ In 2007, 21.7 million people were self-employed in the United States, collecting \$991 billion in earned receipts.³⁰ The largest sectors of industry for the

Figure 1.

Four-Part Test to Determine Unemployment Insurance Coverage



SOURCE: Employment and Training Administration, *Comparison of State Unemployment Insurance Laws, 2009* (Washington, DC: U.S. Department of Labor, 2009): 1-1. Retrieved from <http://ows.doleta.gov/unemploy/pdf/uilawcompar/2009/coverage.pdf>

self-employed in 2007 were (1) professional, scientific, and technical services; (2) construction; (3) real estate and rental and leasing; (4) retail trade; (5) administrative and support and waste and remediation services; and (6) health care and social assistance. These sectors include occupations in veterinary services, accounting, general contracting, specialty trade contracting, health care, social work, machinery repair, and engineering.³¹

Others not covered. Some of the employed people not included in the categories just listed include people employed in the intelligence community,³² agriculture, railroads, and occupations based primarily on commission.³³ Data for some of these people may be accessed through the Railroad Retirement System or a state department of tax or revenue. However, because these systems and departments may collect data only once a year, their ability to provide data for federal reporting requirements may be limited.

Discussion

Our analysis of legislation and data collection systems reveals a strong emphasis on creating longitudinal data systems at the individual level and to develop the capacity to link data between education and the workforce. Further individual-level workforce data are currently shared on a grand scale between state and federal agencies, but few, if any, sufficiently detailed data are accessible by colleges. In this section, we discuss these findings in more detail.

Proposed Linkages

It is clear that the federal government has positioned data collection as a critical element in education reform. At the same time, the federal government has not been granted the authority to develop data systems that track people. Instead, states have been encouraged to develop longitudinal data systems to track people from preschool to the workforce.

State longitudinal data systems. Through four competitive grant programs, states were given flexibility to develop systems that would work best within unique state contexts while at the same time adhering to the elements set forth in the America COMPETES Act. These grants—three rounds of SLDS grants and one ARRA-funded grant—originating from the U.S. Department of Education have placed SEAs at the center of the competitive grant process. To date, nearly half a billion dollars has been made available for the development of state longitudinal data systems with SEAs as the eligible recipients. While it may be the case that SEAs cooperate with institutions of higher education in their states, the value of providing funds specifically for institutions of higher education was acknowledged in HEOA and the proposed AGI. Yet, in neither case have funds been provided.

The use of individual-level data is not new to postsecondary education. Many institutions and state postsecondary systems have embraced the use of data to build cultures of evidence and improve system or institutional performance as is exemplified by their willingness to participate in initiatives such as Achieving the Dream, Access to Success, and voluntary frameworks or systems of accountability.³⁴ While

the question remains, “How specific do data in shared systems need to be to be useful for improving institutional practice?”, what is important is that paths be made available for the data to flow in order to best capture how students move within postsecondary education and into the workforce.

Performance measures for federally funded programs.

The measurement of workforce outcomes for people in federally funded programs is not new. Measurement has evolved over time to include the perspectives of various stakeholders including students, colleges, unions, business, and industry; however, there still exist limitations and challenges. For example, community colleges have been required to report data to be eligible to offer WIA training programs, but many times these data are, in fact, not available or have proven to be prohibitively expensive to collect.

For example, in Florida, currently the gold standard for state longitudinal data systems, colleges submit student data to the state to match it with tracked outcomes for workforce program participants. In return, the colleges receive aggregate statistics and suppressed employment data, which provide only limited information. As a result, colleges still need to undertake the burdensome practice of locating and surveying each of their graduates—clearly a suboptimal outcome.

The U.S. Department of Education and Department of Labor have a variety of programs designed to use individual student data to examine the workforce outcomes of educational programs. However, most of these student-level data have been focused on K–12 education, with explicit funding for SEAs. Federally funded programs have collected individual-level data on postsecondary workforce outcomes to measure performance relating to employment placement, retention, and earnings, yet not all data are adequately available to participating community colleges.

If the ultimate goal of collecting data on all participants in education systems is determined to be essential to educational reform, the lessons learned from workforce legislation are beneficial to the way states think about measuring performance from all segments of education, not just workforce programs. As exemplified by FEDES, the answer does not have to lie in creating large databases for continuously collecting and archiving information about people. It may be that statewide data exchanges share data between sectors of education and the workforce in a periodic and systematic way.

The Current State of Data Collection

Community colleges offer credit and noncredit programs in academic, developmental, and workforce training. The outcomes for their students cover the spectrum of employment opportunities, from child-care providers to armed forces personnel. If workforce outcome measures are required to partially justify the investment in postsecondary education, it is important to understand how comprehensive current data collection is with respect to these multiple outcomes. Data are currently collected and shared between

state and federal entities on a broad scale, and they are collected and shared between some agencies and states. Access to the collected information by colleges, however, is not universal, and, although most workforce outcomes are accounted for in these systems, some are not.

Access to data. Our findings indicate that data about people are frequently being shared among state and federal agencies but are not always being provided to colleges. In Illinois, for example, community colleges are partners in workforce investment activities authorized under WIA. However, data on out-of-state workers shared via WRIS has not been shared with the colleges. As a result, colleges must undertake the burdensome and duplicative effort to collect data on their former students via individual surveys. Providing sufficiently detailed data to colleges that track the workforce outcomes of educational pursuits for individual students would greatly reduce the reporting burden (and cost) for colleges.

Comprehensive collection. Our findings also indicate that not all forms of employment are currently collected in the major data systems. Given the number of self-employed people and the fact that many of them work in occupations for which community colleges provide education and training, a concerted effort should be made to include more data on this population while protecting the security of these data. Utilizing data drawn only from unemployment insurance and FEDES sources would provide answers to some specific questions but not more relevant policy questions. For example, with these data, one could answer the specific question, “How many graduates work for an employer?” One could not answer the question relevant to policymaking: “How many graduates are employed?”

Policy Implications

The use of data to make decisions is at the core of an accountability culture. The federal government has encouraged the collection of individual-level data to inform policy decisions in the area of education and workforce preparation. These advancements, in addition to the numerous data systems and interstate partnerships, contribute greatly to our ability to understand the link between college and career readiness, but much more needs to be

done. If we want to create data systems that inform students, parents, employers, and the community while improving educational practice, strong longitudinal data systems must be developed and utilized in ways consistent with a variety of both programmatic and educational objectives. Addressing the limitations identified in this brief would signify a substantial step forward.

Before the workforce outcomes of educational pursuits can be comprehensively analyzed, the following activities or policies need to receive further attention.

- 1. Encouraging the establishment of postsecondary longitudinal data systems.** Nearly half a billion dollars either has been spent or is pending distribution to SEAs for the expressed purpose of building longitudinal data systems based on student-unit records. While the Higher Education Opportunity Act of 2008 and the proposed American Graduation Initiative (AGI) encourage the establishment of postsecondary education data systems, the funds have yet to be provided (and AGI is not yet authorized).
- 2. Providing colleges with access to data.** Federal and state legislation need to explicitly authorize providing necessary and appropriate workforce-related data to colleges and their representing agencies, if applicable, while ensuring adequate privacy protections. The substantial institutional reporting burdens associated with federal programs would be greatly reduced if colleges were given the ability to more fully interact with existing data systems and exchange partnerships that track individual workforce outcomes.
- 3. Collecting comprehensive employment data.** Collecting individual-level education and workforce outcome data across various state and federal departments, agencies, and partnerships must somehow take into account the role that individual choice plays in a given career path as well as the fact that, currently, employment data are not available for all categories of employment. Thus, collecting data that truly reflect occupational success for any given trainee is an immensely complicated issue that merits further analysis.

¹ The Education Technical Assistance Act of 2002 (Pub. L. No. 107-79).

² More information on these grants may be found by utilizing the Code of Federal Domestic Assistance No. 84.372.

³ See a list of SEAs at <http://nces.ed.gov/ccd/ccseas.asp>.

⁴ Institute for Education Sciences, National Center for Education Statistics, Grantee States (Washington, DC: U.S. Department of Education, n.d.). Retrieved from <http://nces.ed.gov/programs/SLDS/stateinfo.asp>.

⁵ America COMPETES Act of 2007 (Pub. L. No. 110-69).

⁶ Public Law 110-69 § 6401(a)(1).

⁷ The Higher Education Opportunity Act of 2008 (Pub. L. No. 110-315).

⁸ Public Law 110-315 § 113.

⁹ Alisa F. Cunningham and John Milam, *Feasibility of a Student Unit Record System Within the Integrated Postsecondary Education Data System* (NCES 2005–160) (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 2005).

¹⁰ Public Law 110-315 § 115.

¹¹ American Recovery and Reinvestment Act of 2009 (Pub. L. No. 111-5).

¹² Public Law 111-5 § 14005.

¹³ These funds were separate from the SLDS funds. For more information, see Code of Federal Domestic Assistance No. 84.384.

¹⁴ More information for these grants may be found by utilizing the Code of Federal Domestic Assistance No. 84.384 and the Institute for Education Sciences, *Grants for Statewide, Longitudinal Data Systems Under the American Recovery and Reinvestment Act of 2009: Request for Applications* (NCES 09-02) (Washington, DC: Author, July 24, 2009). Retrieved from http://nces.ed.gov/programs/slids/pdf/2009_ARRA_RFA.pdf. According to the CFDA Web site, the eligible entity was not limited, but in the request for applications the competition was limited to SEAs.

¹⁵ As stated in the Race to the Top application, “Each participating LEA that receives funding under Title I, Part A will receive a share of the 50 percent of a State’s grant award that the State must subgrant to LEAs, based on the LEA’s relative share of Title I, Part A allocations in the most recent year, in accordance with section 14006(c) of the ARRA. Any participating LEA that does not receive funding under Title I, Part A (as well as one that does) may receive funding from the State’s other 50 percent of the grant award, in accordance with the State’s plan.”

¹⁶ Carl D. Perkins Career and Technical Education Act of 2006 (Pub. L. No. 109-270).

¹⁷ Workforce Investment Act of 1998 (Pub. L. No. 105-220).

¹⁸ Public Law 109-270 § 1113(b)(2)(B).

¹⁹ Public Law 105-220 § 171(c)(2).

²⁰ While the U.S. Department of Labor budgeted \$15 million for this effort (<http://www.dol.gov/dol/budget/2010/programchanges.htm>), the Data Quality Campaign set the appropriated amount at \$12.5 million (http://www.dataqualitycampaign.org/resources/arra_programs#program_17). We used the conservative value. At the time of writing, the request for applications would be announced in March or April 2010.

²¹ Social Security Act of 1935 (Pub. L. No. 74-271).

²² Office of Unemployment Insurance, Division of Legislation, *Unemployment Compensation: Federal-State Partnership* (Washington, DC: U.S. Department of Labor, October 2009).

²³ David W. Stevens and Jingpi Shi, *New Perspectives on Documenting Employment and Earnings Outcomes in Vocational Education* (MDS-743) (Washington, DC: U.S. Department of Education, Office of Adult and Vocational Education, August 1996).

²⁴ These individual-level data are also being used in aggregate to describe local labor market conditions. For more information about the Local Employment Dynamics partnership of the U.S. Census Bureau, see <http://lehd.did.census.gov/led/led/led.html>.

²⁵ See http://www.acf.hhs.gov/programs/cse/newhire/library/ndnh/background_guide.htm.

²⁶ Employment and Training Administration, *Comparison of State Unemployment Insurance Laws, 2009* (Washington, DC: U.S. Department of Labor, 2009). Retrieved from <http://ows.doleta.gov/unemploy/pdf/uilawcompar/2009/preface.pdf>.

²⁷ See Emily Stover DeRocco, *Training and Employment Guidance Letter 17-05* (TEGL No. 17-05) (Washington, DC: U.S. Department of Labor, Employment and Training Administration, February 17, 2006).

²⁸ For more information, see <http://www.ubalt.edu/jfi/fedes/>. Jacob France Institute at the University of Baltimore is responsible for the technical operations of the pilot, while the Maryland Department of Labor, Licensing and Regulation oversees the administrative management of FEDES. It is important to note this agency serves in a pass-through capacity and does not retain data. For information on the matched data elements and which employees are included in the data exchange, see Appendices C and D in Jane Stavely, *FEDES: Technical Operations Handbook* (Baltimore, MD: University of Baltimore, Jacob France Institute, April 2009).

²⁹ U.S. Department of Labor, Employment Training Administration, *Comparison of State Unemployment Laws 2009* (Washington, DC: Author, December 2009). Retrieved from <http://workforcesecurity.doleta.gov/unemploy/comparison2009.asp>.

³⁰ For purposes of clarification, self-employed people were defined as nonemployers by the U.S. Census Bureau as follows: "A nonemployer business is one that has no paid employees, has annual business receipts of \$1,000 or more (\$1 or more in the construction industries) and is subject to federal income taxes. Most nonemployers are self-employed people operating very small unincorporated businesses, which may or may not be the owner's principal source of income." Retrieved from <http://www.census.gov/epcd/nonemployer/2007/us/US000.HTM>. The Internal Revenue Service utilizes the classification "sole proprietor" as determined by those people who fill out Schedule C of Form 1040 on their federal tax returns. Sole proprietors had a higher count comparatively; we used the conservative measure. For more information on sole-proprietors, see <http://www.irs.gov/taxstats/indtaxstats/article/0,,id=134481,00.html>.

³¹ Ellen Rissman, *Self-Employed as an Alternative to Unemployment* (WP 2003-34) (Chicago, IL: Federal Reserve Bank of Chicago, Research Department, 2003). Brief descriptions of each of these categories and the education they may require are embedded in the data table "Nonemployer Statistics, 2007: Total for All Sectors, United States," available from <http://www.census.gov/epcd/nonemployer/2007/us/US000.HTM>.

³² Including but not limited to the Central Intelligence Agency, the National Security Agency, the National Imagery and Mapping Agency, and the Defense Intelligence Agency.

³³ See Emily Stover DeRocco, *Training and Employment Guidance Letter 17-05* (TEGL No. 17-05) (Washington, DC: U.S. Department of Labor, Employment and Training Administration, February 17, 2006).

³⁴ For more information about (1) Achieving the Dream, see <http://www.achievingthedream.org/>; (2) Access to Success, <http://www.edtrust.org/issues/higher-education/access-to-success>; (3) the American Association of Community College's Voluntary Framework of Accountability, <http://www.aacc.nche.edu/Resources/aaccprograms/vfa/Pages/default.aspx>; (4) the American Association of State Colleges and Universities and the Association of Public and Land-grant Universities' Voluntary System of Accountability, <http://www.voluntarysystem.org/index.cfm>; and (5) the National Association of Independent Colleges and Universities' University and College Accountability Network, <http://www.ucan-network.org/>.



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