



Leveraging Workforce Data Systems to Improve Programs: The Case of Apprenticeship

June 2021

Authors:

Joshua D. Hawley, Ohio State University

Kristin E. Wolff, Social Policy Research Associates

This project has been funded, either wholly or in part, with Federal funds from the Department of Labor, Employment & Training Administration under Task Order Number I630DC-18-F-00008 the contents of this publication do not necessarily reflect the views or policies of the Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement of same by the U.S. Government.

Leveraging Workforce Data Systems to Improve Programs: The Case of Apprenticeship

Summary

Registered Apprenticeships (RAs) are expanding rapidly. Program development has accelerated and efforts to boost participant diversity and inclusion and pilot apprenticeship in new contexts have spawned creative partnerships across the United States. But data systems for RAs have received relatively little attention, even as we know that evidence-informed program (and policy) development requires better data.¹ This has emerged as a critical challenge for workforce data and performance experts—including state longitudinal data system stewards participating in the Workforce Data Quality Initiative (WDQI) community.²

The underlying data systems that the federal government and most states use to support Office of Apprenticeship and State Apprenticeship Agency programs would benefit from alignment—even integration—with broader workforce data systems. In addition, workforce agencies managing multiple programs need better tools to help them make good decisions about where to invest time and resources to enhance program offerings and improve outcomes. Finally, better data *linkages*—to workforce development performance data, employment data, and earnings data as well as data from K–12 or higher education systems—are essential. These linkages enable data insights about which programs have the most significant outcomes and impacts for different people in different contexts over time. States are the primary coordinators of core workforce data systems. They are at the center of efforts to improve data quality and increase connectivity between apprenticeship, education, and workforce data and data systems.

This brief is intended to respond to emerging questions about workforce and apprenticeship data and data systems. These questions ask why apprenticeship data are so important at this time, what these data can and cannot tell us about programs, and how apprenticeship data might be leveraged within broader workforce data systems to inform critical policy questions going forward. While a few states, like Michigan, Ohio, and Washington, are well on the way to working with apprenticeship data in an integrated workforce system context, most states treat these programs as separate and distinct. We hope this brief helps forge a shared understanding of apprenticeship programs and their data as important assets within the wider workforce system and shows how these data can be better leveraged to create new opportunities for workers.

¹ During the writing of this brief, the U.S. Department of Labor released a Funding Opportunity Announcement requesting proposals for Apprenticeship Technical Assistance Centers of Excellence in Data and Performance—the first focused effort to improve and align apprenticeship data.

² These stewards include staff of the WDQI effort funded by the U.S. Department of Labor, the State Longitudinal Data System program funded by the U.S. Department of Education, and complementary state- and foundation-supported efforts across the country.

The Big Reset: The United States Rediscovered Apprenticeship

Apprenticeship is the original form of workforce development, arriving with European immigrants centuries ago. The modern history of U.S. apprenticeships began in the first half of the 20th century, when states like Wisconsin passed individual apprenticeship acts to establish legislative mechanisms to support training in skilled trades. In 1937, the U.S. Congress passed the National Apprenticeship Act. However, the combination of policy incentives and student and preferences had already begun to favor college over vocational training. In addition, labor unions had built successful programs in the trades and did not favor youth apprenticeships that might instead be managed by K-12 school systems.³ As a result, apprenticeship thrived in select sectors where labor unions were strong or the application of hands-on skill was essential for licensure—largely the construction trades, public safety, education and select public sector workers. But it lagged other sectors, failing to capture business support or the imaginations of aspiring middle class families. The number of apprenticeships in recent decades peaked just prior to the Great Recession at about 442,000 and fell by steadily to about 358,000 by 2011.

Since 2014, RA has received significant attention, policy support, and a financial boost by three presidential administrations. President Obama dedicated \$50 million to apprenticeship, alongside the major overhaul of federal workforce policy contained in the Workforce Investment and Opportunity Act (WIOA), which was signed into law in 2014. Eventually, the administration invested some \$100 million to expand and diversify apprenticeship opportunities. President Trump continued this trend, doubling federal funding for apprenticeship in the 2017 budget to \$200 million and providing significant competitive funding for institutions to expand participation. President Biden's first 100 days also included a focus on the RA programs established by the U.S. Department of Labor (U.S. DOL) and a relaunch of the national Advisory Committee on Apprenticeship. In the same year, Representative Bobby Scott from Virginia introduced the National Apprenticeship Act of 2021, which represents the most significant change in apprenticeship since 1937 and proposes some \$3.5 billion in funding to create an additional one million apprenticeships.

Federal investments to date have led to significant expansion in the number of apprentices and a partial recovery of preexisting programs. In 2020, there were approximately 635,000 active apprentices, up from under 400,000 in 2013. The number of graduates from programs in 2020 stood at 82,000, up from just over 50,000 in 2013. And the number of active programs is recovering, having reached 25,000 in 2019—a number last seen in 2009, during the Great Recession. Program expansion is concentrated across certain states and territories, with the District of Columbia and Vermont seeing some of the most significant growth.⁴

However, despite significant growth and a focus on diversity, apprenticeship remains largely White and male, with women participating in tiny numbers, and Black, Indigenous and People

³ How History Explains America's Struggle to Revive Apprenticeships, Brookings, 2018, Greg Ferenstein <https://www.brookings.edu/blog/brown-center-chalkboard/2018/05/23/how-history-explains-americas-struggle-to-revive-apprenticeships/>

⁴ U.S. Department of Labor, Office of Apprenticeship. (n.d.). *Registered Apprenticeship national results: Fiscal year 2020*. <https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2020>

of Color still vastly underrepresented.⁵ Better data could help us see the successes and failures of apprenticeship more clearly and accelerate apprenticeship more equitably and more efficiently.

Data Challenges in Evidence-Informed Apprenticeship Expansion

Despite significant investments in apprenticeship in recent years, apprenticeship data quality and data systems have received limited attention. The primary (federal) apprenticeship data system is the Registered Apprenticeship Partners Information Data System (RAPIDS). It includes data on individuals participating in apprenticeships by state and by program. It exists under the authority of the National Apprenticeship Act, and the Office of Apprenticeship in the U.S. DOL Education and Training Administration manages and publishes RAPIDS data at the federal level.

Currently, apprenticeship data reporting across states is not consistent. Twenty-five states submit data to RAPIDS and 18 states and territories operate apprenticeship offices. Other territories and the remaining ten states submit aggregate data to the federal government but do not send individual-level data.

Limitations of the RAPIDS data themselves have also impeded their effective use. The absence of unique identifiers that link one data set with another, inconsistent reporting, and data gaps are common. Further, each state has its own procedures for identifying and working around the weaknesses in apprenticeship data. This invites duplication of efforts and undermines the kind of alignment that supports modern data and information systems. Specific examples are provided in Exhibit A.

Exhibit A: RAPIDS Data Attributes That Limit Data Use

- Apprenticeship programs do not always require a unique identifier for each individual or business, which makes it difficult to create linkages with other data files.
- While individuals earn nationally recognized credentials in all RA programs, states do not mandate the provision of detailed information on each degree or credential. This prevents comparisons of credential attainment across programs.
- The absence of reporting standards makes it difficult to compare programs on key dimensions, such as hours of classroom instruction (known as related technical instruction, or RTI) versus required on-the-job training hours.
- Data on prior educational attainment, such as high school or equivalency program names, are not included in the records.
- Data on program sponsors and in-program wage progression are too sparse for researchers and policymakers to understand apprenticeship program networks, even though we know these play a critical role in achieving scale.

⁵ Angela Hanks, Annie McGrew, Daniells Zaoules The Apprenticeship Wage and Participation Gap, Center for American Progress, 2018 <https://cdn.americanprogress.org/content/uploads/2018/07/10122156/ApprenticeshipWageGap-brief1.pdf>

In most states, RAPIDS data are not connected to core workforce program data. Even at the state level, these data are typically managed by separate agencies. States know apprenticeship is critical for developing skilled labor to keep their economies competitive, but weak linkages between core RAPIDS data and other state administrative information limit the ability to answer critical questions that could help optimize programs for learners, workers, and firms.

For example, individuals who enter RA tend to be older than those enrolled in other postsecondary education and training programs. In Ohio, for example, the average age for a first-time apprentice is 29 years old.⁶ By comparison, the vast majority of first-time enrollees in 2- and 4-year postsecondary institutions are under 25 years old. As a result, RA participants often have a significant amount of labor market experience before they begin apprenticeship.

Linking apprenticeship and earnings data could help us understand apprentices' prior experience, the sectors and occupations they are likely to come from, and the effect of wages on completion of apprenticeship programs. Connecting education and apprenticeship data could also help us better understand the role of apprenticeship in academic achievement or career development and advancement, for example.

There are many important questions policymakers expect programs to be able to answer using apprenticeship data. Without boosting the quality of these data and linking them to other sources, however, a true understanding of the value of apprenticeship in the broader labor market is difficult to achieve.

Solutions: Improving Apprenticeship and Workforce Data Quality, Connectedness, and Use

Despite the challenges outlined above, there is a way forward that builds on the data integration work that states have already done. In particular, states could take the following three steps to better integrate apprenticeship and workforce data:

- **Employ apprenticeship data in research more consistently.** States regularly employ an array of data sources in different combinations to conduct research and analysis in order to advance workforce policy (see Exhibit B). RAPIDS could be more routinely included as a data source, enabling better analysis of career pathways (e.g., from career and technical education to RA), a more complete picture of learner and worker participation in the labor market, and a deeper understanding of program alignment and integration.

⁶ This is quite different from well performing apprenticeship programs in Europe and elsewhere, where the average apprentice is a decade younger.

Exhibit B: Common Workforce Data Types and Sources

Data Type	Data Source
Employment	Unemployment Insurance Wage Records Quarterly Census of Employment and Wages
Education	Integrated Post-Secondary Education Data System (higher education) Career and Technical Education Statistics (CTE) Common Core of Data (K-12) Education, Demographic, and Geographic Estimates (K-12) Digest of Educational Statistics (K-12) Longitudinal studies (various)
Workforce Development	WIOA Program Outcomes

- **Improve data matching.** There is a case for matching data between single programs, such as RAPIDS, and broader state employment and education data systems. A line of sight into employment over time will allow for clearer comparisons of job security and career progression for apprentices versus other workers. It will also facilitate tracking of apprentices' educational progress in credit-bearing programs so that we better understand their value.

A third reason to pursue this type of data matching is to better understand the paths that apprenticeship completers take through cross-state labor markets. This is among the data needs repeatedly cited by states that share a common labor market, such as the region that links Ohio, Indiana, and Kentucky. A first step could be creating a standardized list of data files for matching Unemployment Insurance wage records across multiple states.⁷

- **Improve decision-support tools.** Most states are eager to help learners and workers make good decisions about education, training, and jobs and have developed an array of dashboards, outcomes reports, and other navigation tools for this purpose. Apprenticeship has not often been included, which can limit its visibility as a training option for learners and workers and as a source of insight for researchers and policymakers. Ohio, Michigan, and Washington State show how an integrated approach can help states build better tools to support decision makers at many levels:

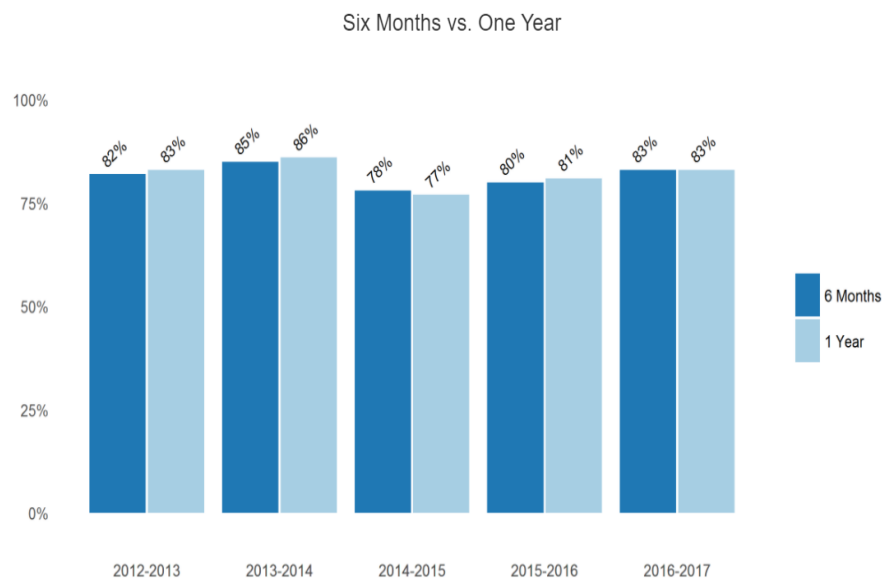
⁷ Ohio, along with other states in the region, have been working with a group from the Midwest, to coordinate data services and facilitate data driven decision making using workforce and education data. https://coleridgeinitiative.org/wp-content/uploads/2020/04/Midwest_Spring_Summary_Report.pdf

- **Ohio's Workforce Success Measures Dashboard** provides standardized workforce outcomes for a wide range of training programs, including all WIOA, higher education, and RA programs. The common measures (employment, retention, earnings, and credential attainment) are calculated to enable stakeholders to compare and benchmark program performance over time (see Exhibit C).
- **Michigan's Registered Apprenticeship dashboard** tracks apprentices and completers—by industry, region, and select demographic group—and also provides occupational and earnings data (see Exhibit D).
- **The State of Washington** produces an [annual report](#) that includes apprenticeship data in a WIOA format by linking it with state wage records (see Exhibit E).

Exhibit C: Screenshot of Sample Workforce Success Measures Data (Apprenticeship Completers' Employment After Program Exit)

Employed after Completion

This graph compares the percent of completers found employed in Ohio during the second and fourth calendar quarter after completing an apprenticeship (labeled 6 months and 1 year), by program year in which the individual completed. Click the graph to see 2016-17 completers' employment by JobsOhio region.



8

⁸ <https://workforcesuccess.chrr.ohio-state.edu/spotlight?location=99999>

Exhibit D: Screenshot of Michigan Registered Apprenticeship Dashboard (Occupational Data View)

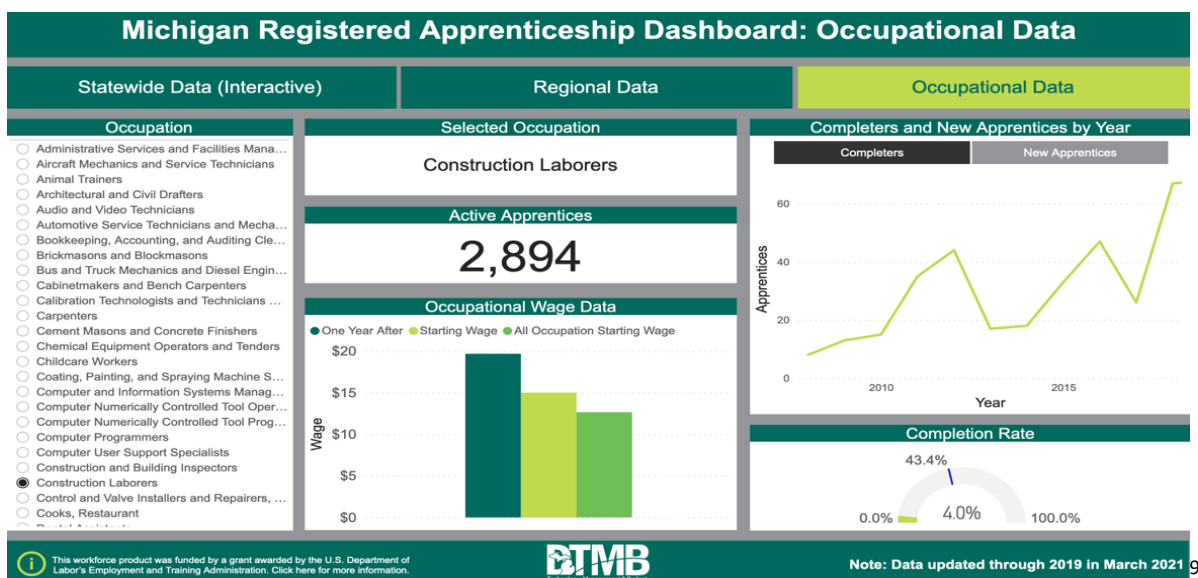


Exhibit E: Screenshot of Washington Workforce Training and Education Coordinating Board's Workforce Training Results Report (on Apprenticeship Outcomes)

Apprenticeship

Training that combines classroom instruction with paid, on-the-job training under the supervision of a journey-level craft person or trade professional. Apprenticeships are governed by the Washington State Apprenticeship and Training Council and administered by the Department of Labor and Industries (L&I).

State Core Indicator Results

Employment Percentage of participants who were employed, as reported to the Employment Security Department during the third quarter after leaving the program.*	All 84% Completers 94%
Earnings Median annualized earnings six to nine months after leaving the program. (Quarterly earnings are the result of hourly wage rates and the number of hours worked in a calendar quarter. To derive annualized earnings, quarterly earnings are multiplied by four.)	All \$65,300 Completers \$89,300
Skills Percentage of participants who obtained an appropriate credential. (Percentage based on all participants, including those who did not receive training through the program.)	47%
Net Participant Benefits Average additional yearly earnings plus benefits (such as health insurance, paid vacation, and sick leave). Overall benefits are calculated by subtracting tuition costs, foregone earnings while in a workforce program, reduced government assistance, and increased taxes because of higher earnings.	\$30,200

⁹ https://www.michigan.gov/leo/0,5863,7-336-94422_95539_73460---,00.html

¹⁰ <https://www.wtb.wa.gov/research-resources/workforce-training-results/#close>

Conclusion

Apprenticeship expansion efforts will likely continue for some time. Apprenticeship data systems would benefit from a commensurate level of attention, experimentation, and investment. Better data infrastructure and interstate collaboration, data linking and matching, and development of new decision-support tools promises to vastly improve the quality of apprenticeship data and enhance the workforce system's ability to use it effectively.