



How the COVID-19 Pandemic Affected State Apprenticeship Systems

Takeaways from Eight States

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This brief describes key takeaways from apprenticeship administrators in eight states: Arkansas, California, Connecticut, Florida, Maryland, Michigan, Minnesota, and Mississippi (figure 1).¹ We selected states based on specific criteria, including geographic region, state apprenticeship administration, and size of apprenticeship participation by number of active registered apprentices per state, and with the goal of selecting states with a range of state apprenticeship system characteristics.² The administrators described how the COVID-19 pandemic affected their Registered Apprenticeship system and how they and their apprenticeship partners responded to the pandemic. Apprenticeship program administrators support Registered Apprenticeships³ and their system partners, such as education and training providers, employers, and industry and workforce intermediaries, among others. Because apprenticeship program administrators work at the state level, agency staff often do not

¹ Websites for each state's apprenticeship programs follow: Arkansas (<https://arkansasosd.com/apprenticeship/>), California (<https://www.dir.ca.gov/das/das.html>), Connecticut (https://portal.ct.gov/dol/Divisions/Apprenticeships?language=en_US), Florida (<https://www.fldoe.org/academics/career-adult-edu/apprenticeship-programs/>), Maryland (<https://www.dllr.state.md.us/employment/appr/>), Michigan (<https://www.michigan.gov/leo/bureaus-agencies/wd/apprenticeships>), Minnesota (<http://www.apprenticeship.mn.gov/>), and Mississippi (<https://mdes.ms.gov/i-need-a-job/job-searching-resources/training-education/mississippi-apprenticeship-program/>).

² See appendix for more details and additional state selection criteria.

³ The homepage for Registered Apprenticeships can be found here: <https://www.apprenticeship.gov/employers/registered-apprenticeship-program>.

directly interact with apprentices and do not oversee day-to-day apprenticeship program operations or training. The key takeaways included in this brief therefore only include the perspective of state apprenticeship program administrators and focus on the state apprenticeship system, rather than specific apprenticeship programs.⁴ The takeaways can help other state administrators understand what lessons might be relevant for their own state systems.

The brief is part of the State Apprenticeship Systems Capacity Assessment Study funded by DOL, which is aimed at understanding how state apprenticeship systems operate to achieve goals (see box 1). This brief discusses how the COVID-19 pandemic affected state apprenticeship staff and their engagement with employers, training providers, and other partners in the apprenticeship system; how apprentice and industry engagement changed during the pandemic; reported challenges and successes in the provision of related training and instruction for apprentices; and what implications for the future these changes have for the system according to the eight selected states.⁵ The key takeaways in this brief draw from several research questions, including the following:

- How did the COVID-19 pandemic affect state apprenticeship administrators' ability to support apprenticeship programs?
- How did the COVID-19 pandemic affect training providers' ability to deliver services?
- How did the COVID-19 pandemic affect interest in apprenticeship and industry focus?
- What will the apprenticeship landscape look like after the COVID-19 pandemic?

⁴ See the Study Background box for the study's definition of a state apprenticeship system.

⁵ Training providers in this brief refers to nonemployer apprenticeship partners that provide training services, such as related technical instruction (RTI). These providers may include community colleges, workforce boards, and community-based organizations. Although employers may also provide training to apprentices, for the purposes of this brief, employers are not included in the training provider definition to better differentiate the impacts of COVID-19 on employers compared to other apprenticeship network partners.

BOX 1

Study Background

The **State Systems Capacity Assessment Study** involves a review and assessment of the capacity of state systems and their partners to design and implement Registered Apprenticeship (RA) programs and related services. For this study, a *state apprenticeship system* is defined as the state and local workforce agencies and their partners that work to prepare people for, or support people in, apprenticeship programs in their state or local area; agencies and partners that work to develop those opportunities, including the National Apprenticeship system; and activities those agencies and partners carry out for those purposes. Partners can include the public sector, nonprofits, employers, local industry, and trade organizations, as well as education and training providers.^a

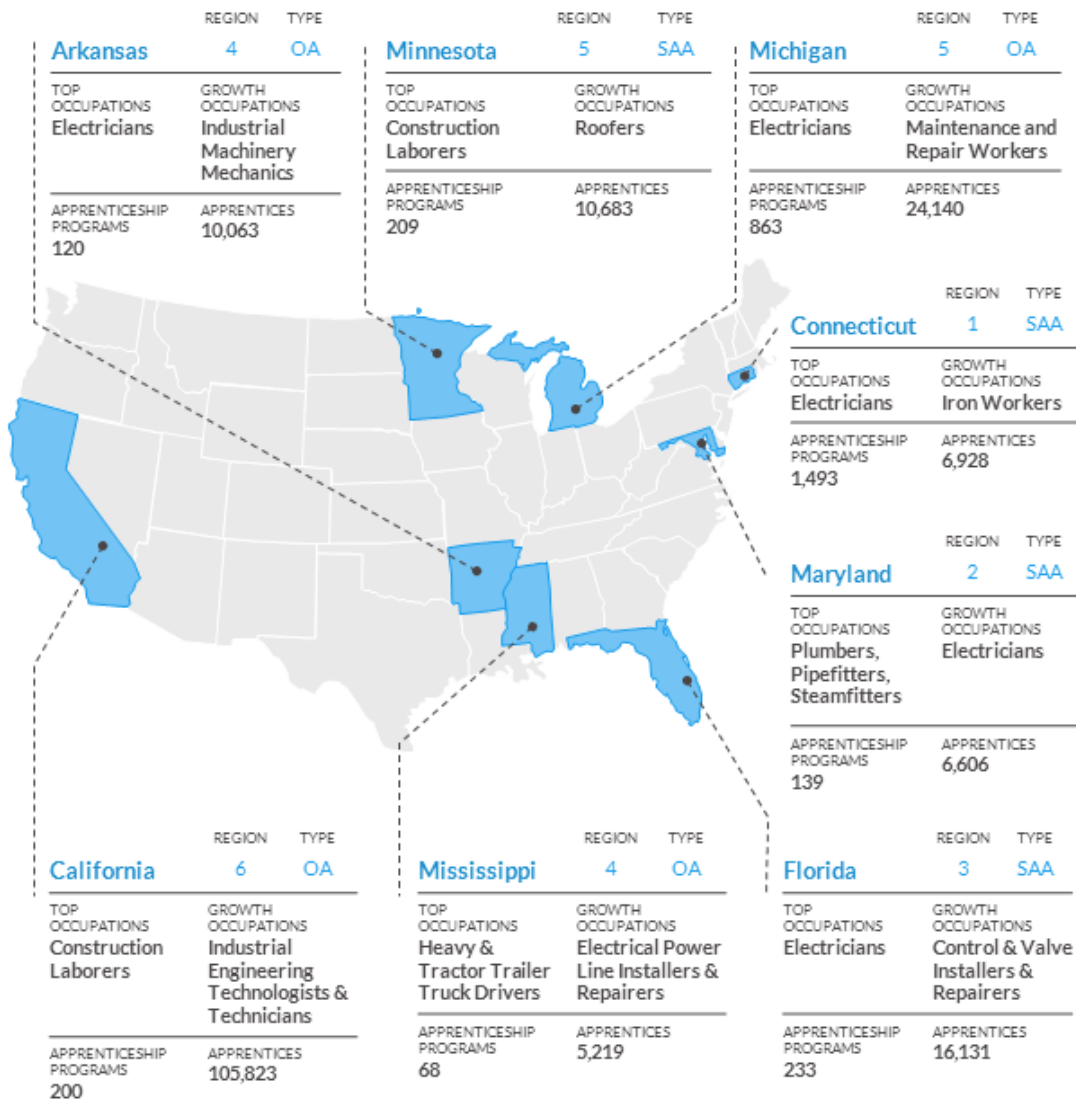
The Chief Evaluation Office (CEO) within the U.S. Department of Labor (DOL), in collaboration with DOL's Office of Apprenticeship (OA) and Office of Policy Development and Research (OPDR), commissioned this study, which is being led by the Urban Institute in partnership with Mathematica. It is part of a broader portfolio of work aimed at understanding strategies to expand apprenticeship. The definition above is not a term defined in Title 29 of the Code of Federal Regulations, Part 29 "Labor Standards for the Registration of Apprenticeship Programs," which provides definitions for both *state apprenticeship agencies* and *state apprenticeship councils*. This is instead an operational definition used only for the purposes of this study.

^a Definition adapted from definition of state apprenticeship systems found in Eyster, Lauren, Christin Durham, Michelle Van Noy, and Neil Damron. 2016. "Understanding Local Workforce Systems." Washington, DC: Urban Institute. https://www.urban.org/sites/default/files/publication/78496/2000648-understanding-local-workforce-systems_1.pdf.

The brief draws from two virtual discussion groups conducted in December 2022 and January 2023. Each discussion group included 4 high-level state apprenticeship agency staff members, one staff member for each state in the study. The brief also draws from data from DOL's Registered Apprenticeship Partners Information Data System (RAPIDS).⁶ Throughout this brief, when a number is provided to demonstrate how many respondents agreed with a takeaway, this number should be viewed as a minimum because discussion group facilitators did not consistently ask for counts and not all topics were discussed in both groups. Takeaways from the virtual discussions should not be interpreted as representative of the experiences of all states. See the appendix for more information on the methodology and limitations. Figure 1 shows key information on each state and its apprenticeship system.

⁶ Virtual discussions were conducted approximately 33 to 34 months after the U.S. government declared the COVID-19 pandemic a national emergency in March 2020.

FIGURE 1
Registered Apprenticeship Data for Eight States in 2022



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Source: Data for Arkansas, California, Florida, Maryland, Michigan, and Mississippi is from apprenticeship programs reporting to the Registered Apprenticeship Partners Information Data System (RAPIDS). Data for Connecticut is based on data provided by the Connecticut State Apprenticeship Council. Data for Minnesota is based on data provided by the Minnesota Department of Labor and Industry. Region numbers for states are drawn from the six apprenticeship regions defined by DOL.

Notes: OA states are those where apprenticeships are registered through the U.S. Department of Labor’s Office of Apprenticeship (OA). SAA states are states that register apprenticeships through the state apprenticeship agency (SAA). Top occupations are defined as the detailed occupations (six-digit SOC codes) with the highest number of registered apprentices during 2022. Growth occupations are defined as the detailed occupations (six-digit SOC codes) with the highest percentage change in apprentices active between 2019 and 2022 and are restricted to occupations with at least 30 apprentices registered in 2019. In some cases, information may vary from data maintained by individual states, likely because of the timing of RAPIDS data submission and how data points are defined.

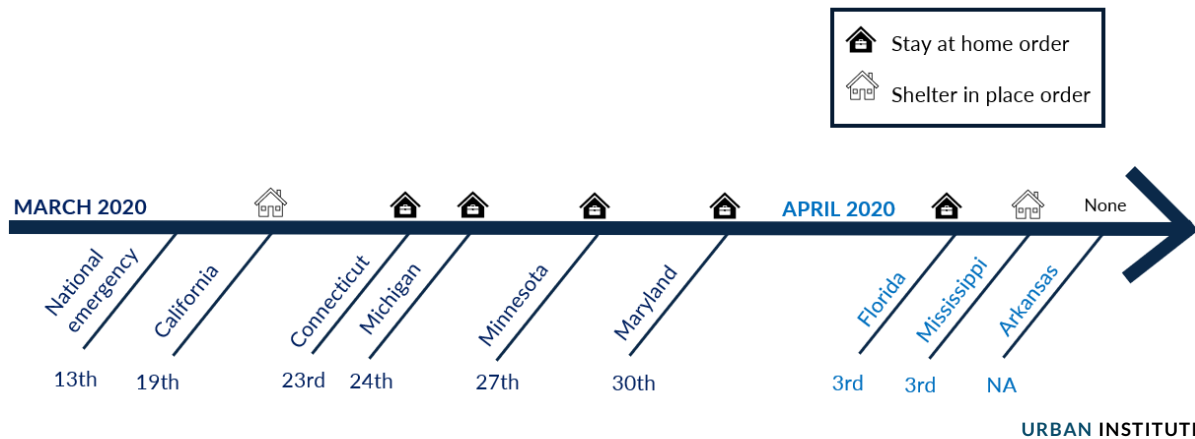
How Did the COVID-19 Pandemic Affect State Apprenticeship Administrators' Ability to Support Apprenticeship Programs?

When the U.S. government declared the COVID-19 pandemic a national emergency in March 2020, apprenticeship administrators, like many state agencies around the country, reported that they had little choice but to transition their work to a remote environment. Before the pandemic, apprenticeship administrators, who provide technical assistance and support to program sponsors among other partners, said they largely conducted their meetings, engagement events, and program compliance reviews in person. State governors enacted different COVID-19 pandemic shutdown policies, including stay-at-home and shelter-in-place orders for different periods, which varied by state (figure 2). Although definitions may vary slightly by state, stay-at-home orders were less restrictive, allowing for movement outside of home for essential activities, whereas shelter-in-place orders tended to be more restrictive with residents advised to stay inside.⁷ Arkansas is the only state of the eight states studied in which the governor did not enact a shutdown order. In the focus groups, state administrators described their transition to remote work as a positive experience, as described in the takeaways below, allowing agencies to continue supporting their apprenticeship partners and programs during the pandemic.

⁷ For complete definitions of stay at home and shelter and place orders, see Carter, Jordan, Yucel Ors, and Stacy Richards. 2023. "What's the Difference Between Shelter in Place, Safer at Home, and Stay Home Orders?" Washington, DC: National League of Cities. <https://www.nlc.org/article/2020/03/30/whats-the-difference-between-shelter-in-place-safer-at-home-and-stay-home-orders/>.

FIGURE 2

Shutdown Orders for Each State Included in the Brief, Issued by State Governors during the COVID-19 Pandemic in March and April 2020



Source: State press releases indicating the type of shutdown order and data of initial order. For more information, see Executive Department State of California, Executive Order N-33-20, ; State of Connecticut, Executive Order NO,7H; State of Florida, Office of the Governor Executive Order Number 20-91; The State of Maryland, Governor of the State of Maryland Number 20-04-05-02; The State of Michigan, Executive Order 2020-21; State of Minnesota Executive Department, Emergency Executive Order 20-20; State of Mississippi Office of the Governor, Executive Order NO, 1437.

Note: The dates in the timeline show when the state issued a COVID-19 policy, including stay-at-home or shelter-in-place orders. The state of Arkansas did not issue a COVID-19 stay-at-home or shelter-in-place order during the pandemic. “NA” stands for Nonapplicable.

Leveraging Technology Allowed Apprenticeship Administrators to Pivot Their Work Online Quickly and Easily and to Streamline Work Processes

Five state administrators reported that their agencies easily transitioned their work online during the COVID-19 pandemic, making them available to meet and address partners questions in real time.⁸ State staff described using technology, including virtual meeting and collaboration platforms, to work remotely during the pandemic. No state administrator reported challenges with state agency staff learning how to use virtual platforms. Three state staff noted that their agencies provided a virtual private network (VPN) to staff, with one state agency providing laptops to staff, allowing them to work remotely and conduct virtual meetings while keeping their agency information secure. Florida staff noted that their apprenticeship training representatives, who live all over the state, found it easier to conduct client meetings virtually rather than traveling to meetings. California staff described their ability to hold virtual meetings for the first time during the pandemic as being beneficial to their agency

⁸ A survey of public workforce staff in seven states by the Heldrich Center similarly found that most respondents felt that they transitioned well to working remotely during the COVID-19 pandemic. See Martin, Michele, and Liana Volpe. 2020. *Delivering Workforce Services in the COVID-19 Environment*. New Brunswick, NJ: Heldrich Center for Workforce Development. https://heldrich.rutgers.edu/sites/default/files/2020-10/Suddenly_Virtual_Delivering_Workforce_Services_in_the_COVID-19_Environment.pdf.

and “transformative across the board,” likely for the new flexibility that virtual meetings offered to staff and partners in the longer term.

Shifting agency work online allowed some agencies to streamline their work processes. Two state administrators noted that their day-to-day work runs better now that their work is online because their agency is paperless. They noted it is easier to change or enhance a process online, compared with before the pandemic when these processes were not paperless. The California administrator estimated that now less than 10 percent of the registration, compliance, and other work of their apprenticeship agency uses paper, while, in 2017 closer to 80 percent of their work relied on paper. They credited a DOL grant they received before the pandemic for upgrading their state apprenticeship data system to allow partners to enter their apprenticeship data directly into the system, saving the need for additional state agency staff to assist, while reducing common paper-reporting errors. Another state administrator, however, described agency modernization challenges during the pandemic because their agency historically relied heavily on physical file storage and paper documents. When the pandemic hit and the agency transitioned their work online, it prompted this agency to use more technology to improve access to program and apprentice information.

BOX 2

What Did Apprentice Recruitment Look Like during the COVID-19 Pandemic?

According to discussions for this study, three state agencies made changes to apprenticeship recruitment during the pandemic driven by staffing challenges and limitations on in-person services. In two states, Michigan and Connecticut, state apprenticeship agencies reassigned workforce staff to support unemployment insurance claims, limiting staff time to recruit apprentices or connect them to opportunities. Without the ability to recruit apprentices in person, like at job fairs, some states turned to social media as a recruitment tool. Maryland used innovative social media outreach to address recruitment challenges and has continued to use social media to recruit participants, to share apprentice success stories, and to promote apprenticeship events.

By Working Virtually, State Apprenticeship Agencies Continued Supporting Partners, and Expanded Their Reach and Responsiveness

State administrators, as described below, noted that remote service delivery did not inhibit their ability to support apprenticeship partners and programs, and several states described ways they continued to support employer and training partners despite not being able to meet in person. One state administrator noted that the ability to work remotely allowed them to be flexible to respond immediately to partner and sponsor technical assistance needs in real time as they arose: “If anything [the shift to online] probably made us a lot nimbler in being able to respond to our partners and sponsors.”

Instead of a technical assistance situation where you had to get everybody in the building, now it's really easy to just set up a Teams call to address any questions from partners right then and there when it's fresh in everyone's minds.

—State apprenticeship administrator

The state administrators of Michigan and Minnesota noted that they reached more partners, including employers, during the COVID-19 pandemic with virtual platforms than before the pandemic. Michigan staff said hosting virtual apprenticeship launch network sessions, which aim to increase the number of registered apprentices, allowed them to reach more employers because employers could log on from anywhere in the state.⁹ Similarly, Minnesota staff noted that their virtual engagement efforts with educators, employers, and community-based organizations increased engagement because people across the state did not have to drive into the Twin Cities Metro area. Other state administrators provided examples of how they met with partners virtually. [Maryland's Apprenticeship and Training Council](#), composed of employer and employee partners, met virtually during the pandemic to continue their work of establishing apprenticeship policies and approving program standards. Connecticut's administrator noted that several state agencies including their agency and the State Board of Education and Department of Consumer Protection met virtually during the pandemic to coordinate their apprenticeship efforts.

The virtual setting dramatically increased the range of folks we can interact with when we're hosting events and providing information and resources to the citizens of [state]...Now in some of these schools the teachers and counselors could log into these presentations with their classrooms and students.

—State apprenticeship administrator

⁹ For more information on Michigan's Apprenticeship Launch Network, please see Gandhi, Nick. *Registered Apprenticeships in Michigan*. 2020. Lansing, Michigan: Bureau of Labor Market Information and Strategic Initiatives. https://milmi.org/_docs/publications/Registered-Apprenticeships-in-Michigan.pdf.

Shifting to Virtual and Hybrid Reviews Allowed Agencies to Continue Conducting Apprenticeship Program Reviews

Prior to the COVID-19 pandemic, it was common for apprenticeship administrators to conduct in-person reviews to ensure apprenticeship programs follow applicable state and federal laws and regulations and to assess program performance and adherence to apprenticeship standards.¹⁰ However, five state administrators described how they conducted virtual and hybrid apprenticeship program reviews during the pandemic.¹¹ Maryland's administrator reported that because of an inability to host reviews in-person during the pandemic, they started holding virtual program quality assurance reviews. The state apprenticeship administrator described that these reviews are conducted every two years to determine if apprentices received on-the-job learning as intended, and if wage increases are consistent with standards, among other requirements. The administrators of Michigan and Minnesota also conducted virtual reviews, with Minnesota staff noting that virtual compliance reviews made it easier to review programs by increasing the range of partners included in the reviews. Two of these state administrators noted that for larger programs and follow-up, in-person reviews were still necessary. California's administrator noted that as a large state, where it is common for agency staff to fly across the state to complete compliance reviews, hybrid reviews allowed staff to complete aspects of the reviews virtually.

Despite the advantages of virtual and hybrid reviews states described, two state administrators said they did not conduct virtual or hybrid reviews during the pandemic. Arkansas staff continued to do on-site reviews, noting that it was important to complete on-site reviews in person to interact with program staff, physically see where records were stored, and confirm that equipment bought by the state was indeed purchased. It was reported that on-site reviews also allowed the reviewer to ask questions and see where items like virtual sign-in sheets are stored. Another state administrator noted that they paused program reviews during the pandemic because all reviews were in person, but they have recently begun to adapt to offer virtual reviews.

¹⁰ Under federal Apprenticeship Final Rule, 29 CFR Part 29 (<https://www.apprenticeship.gov/sites/default/files/program-performance-standards.pdf>), agencies must evaluate the performance of registered apprenticeship programs with quality assurance assessments and compliance reviews, among other tools. Common names for these reviews include *quality assurance reviews* and *compliance reviews*.

¹¹ The term *hybrid* in this brief describes a mix of both in-person and remote activities, including remote learning and virtual meetings. This is distinct from DOL's definition of *hybrid approach to registered apprenticeship programs*, in which apprentices are required to both demonstrate competency and meet a minimum of on-the-job training (OJT) and related technical instruction (RTI) hours. For more information see "At-a-Glance: Three Approaches to Apprenticeship Program Completion," Employment and Training Administration U.S. Department of Labor, accessed March 30, 2023, https://www.doleta.gov/oa/pdf/Three_Approaches_Apprenticeship_Program_Completion.pdf.

How Did the COVID-19 Pandemic Affect Training Providers' Ability to Deliver Services?

Apprenticeship training partners vary by state, industry, and occupation, with related technical instruction (RTI) often taking place in a classroom or lab setting, and hands-on on-the-job learning or training (OJL/OJT) occurring with an employer or training partner. Although the type of training partner varies across programs and program components, states described their experiences with nonemployer training partners, including community colleges, community-based organizations, state education systems, and workforce boards, but they did not distinguish between RTI and OJL training.¹²

- RTI is instruction typically delivered in a classroom or lab setting for a specified number of hours per program. RTI teaches technical or academic competencies related to the trade or occupation.
- OJL is typically a paid specified yearly hour or program requirement that takes place with an employer or training partner concurrently or after apprentices complete RTI. OJL is hands-on training focused on skills of the trade or occupation and is typically supervised by an experienced and certified mentor.¹³

All state administrators, including Arkansas (the only state without statewide closure orders), noted that in-person apprenticeship training was paused at the beginning of the COVID-19 pandemic, and training partners shifted at least some of their training online to respond to the health and safety concerns. Three state staff mentioned that some training partners offered hybrid learning (remote and in person) later in the pandemic, maintaining remote learning options while offering limited in-person instruction with safety precautions including masking and social distancing. For most programs, especially hands-on programs like construction and welding, it was the first-time partners considered how to offer training online. Before the pandemic, the top apprenticeship industry nationwide, including the states mentioned in this brief, was construction, which requires hands-on learning.¹⁴ State administrators reported that nonemployer training partners faced challenges adapting hands-on training remotely and said that although it can be beneficial to use online learning to train apprentices, it is not a substitute for hands-on learning.

¹² While it is common for employers to provide on-the-job learning opportunities, this section specifically references training provided by nonemployer partners. For further information on RTI and OJL, see Office of Disability Employment Policy, "Youth with Disabilities Entering the Workplace through Apprenticeship Understanding Apprenticeship Basics." Washington, DC: DOL Employment and Training Administration. <https://www.dol.gov/sites/dolgov/files/odep/categories/youth/apprenticeship/odep1.pdf>.

¹³ OJL for Registered Apprenticeships typically involves up to 2,000 hours per year and the total number of OJL hours varies depending on the program and state. Competency-based models may be less than 2,000 hours.

¹⁴ In 2019, construction was the leading industry by number of registered apprentices, with 37 percent (or 193,249 apprentices) of all registered apprentices working in the construction industry. For more information, see the [data dashboard](#).

Training Providers and Instructors Faced Logistical Challenges Transitioning In-Person Training Online

State administrators noted that many of their training partners did not offer online apprenticeship training prior to the pandemic, and they faced logistical difficulties transitioning their in-person programs online during the pandemic. Maryland's administrator noted that some of their sponsors, few of which are community colleges, faced challenges building virtual platforms independently for the first time to deliver online training. The administrator noted that training providers were unsure how to approach the shift in instruction from in-person to online, and that challenges were mostly logistical. Another state staff described how some smaller training providers had difficulties with offering virtual training for the first time and decided to stay with on-site, in-person training instead, once stay-at-home orders were lifted. In addition to the logistical difficulties that training partners faced, state staff described instructor challenges. Florida's administrator described how its state's hybrid instruction policy caused difficulties for instructors, who in some instances were tasked with delivering both in-person and remote learning concurrently. Arkansas' administrator noted that the success of online programs may depend on instructors' comfort level with teaching in an online setting and the ease at which they adapted to the change in classroom setting. State administrators from Florida and Connecticut also reported that teacher shortages affected partners' ability to train apprentices.

Despite logistical challenges training partners faced, four state staff praised their training partners' ability to quickly adapt their apprenticeship trainings during the COVID-19 pandemic. Arkansas' administrator noted that their college-based programs and larger apprenticeship programs adapted more easily to online learning. Two state staff noted that their sponsors, who act as training partners, quickly addressed the need to build or adapt to online learning platforms for their apprenticeship programs. Connecticut's administrator mentioned that their career technical education system rapidly developed an online institute in real time.

Online Learning Was Viewed as Offering Greater Flexibility than In-Person Learning, Despite Challenges

Two state staff noted the benefits of asynchronous learning, where apprentices can take classes online on their own time, at their own pace.¹⁵ Connecticut's administrator reported that attendance rates increased with asynchronous classes, offering more flexibility and greater work-life balance to apprentices. Arkansas' administrator mentioned that apprentices like having the option to take online classes at home in a more casual environment, while also noting increased enrollment in online classes. While remote learning might not be suitable for all occupations, state staff noted that remote learning offers benefits to apprentices and opportunities to more easily reach apprentices living in rural areas. Minnesota's administrator noted that remote learning allows rural apprentices to attend related technical instruction without having to travel, and Michigan's administrator said that an online health

¹⁵ *Asynchronous learning* describes a training that is offered online and is typically recorded, allowing apprentices to take classes when their schedule allows, rather than adhering to a fixed class schedule. Asynchronous learning may be available to apprentices as part of hybrid learning options, which combine both in-person and remote learning formats.

care program, which has grown and plans to expand, allowed rural apprentices to enroll from across the state. Similarly, in Arkansas, one program started a virtual Spanish-language electrical program, recruiting apprentices from around the state. The program was well attended and easy for apprentices to access online, whereas finding enough participants to fill a cohort in one location in person was challenging.

The apprentices love [online learning] because they can go home, turn on their computer, be on time, get washed up and into their sweats, feel casual and really absorb. It's working. They are passing their exams with flying colors.

—State apprenticeship administrator

Despite the benefits of online learning, two states described challenges with apprentices learning concepts online compared to in-person. Arkansas' administrator said because apprentices in certain programs had a hard time grasping concepts virtually, those programs switched back to in-person learning after a few months. Michigan's administrator also noted that they heard from schools about apprentices' difficulty learning material online. Arkansas' administrator also said that internet connectivity was an issue and that it was common for apprentices to lose connection multiple times throughout a several-hour-long course, which frustrated apprentices. State administrators did not discuss apprenticeship challenges with accessing computers, but Connecticut noted that their career and technical institutions distributed laptops to apprentices that needed them to access online classes.

We have a lot of programs distributed from the Twin Cities and it's not realistic for rural apprentices to make the drive from rural parts of the state to complete RTI. Those rural apprentices can attend RTI from where they are instead of dealing with travel.

—State apprenticeship administrator

Online Learning May Not Be a Substitute for In-Person Hands-On Learning in All Industries, but it May Offer Opportunities to Expand Apprenticeships to New Industries

Five state administrators noted the need to retain hands-on learning components in-person for apprenticeship programs in certain industries, such as welding and construction. Minnesota staff noted that while community-based organizations offered remote learning for the building trades, it was hard

to provide training fundamentals when much of the training depends on hands-on experience. Another state staff noted that the building trades need to have hands-on learning opportunities to allow apprentices to apply their knowledge in a lab setting and cannot be taught in a virtual setting alone. Michigan’s administrator described an online mechatronics program where the online simulation did not align with in-person troubleshooting, frustrating instructors and making it difficult for apprentices to understand the material. To allow in-person training for a welding apprenticeship program in Connecticut to continue, DOL awarded a training extension to allow all apprentices to complete their welding instruction in person once in-person training resumed. Two state administrators also noted that remote learning offers an opportunity for states to expand apprenticeships into other industries, where online learning makes sense. For example, Mississippi’s administrator reported that a management apprenticeship program with Keesler Federal Credit Union provides online related technical instruction to incumbent workers in the evening at their own pace, while OJL can be completed on-site during the day. While most administrators agreed that certain hands-on programs will continue in-person instruction post-COVID, they said training partners will continue hybrid and remote learnings for some of their programs.

You’re never going to replace hands-on [learning], but for certain programs the online learning is perfect.

—State apprenticeship administrator

How Did the COVID-19 Pandemic Affect Interest in Apprenticeship and Industry Focus?

During the COVID-19 pandemic, most of the eight states experienced declines in the number of new apprentices and the number of active apprentices (table 1).¹⁶ State administrators reported that economic uncertainties, coupled with pandemic disruptions, affected both employer and participant interest in apprenticeship and the industry focus of state expansion efforts. Nationally, the number of new apprentices declined by 17 percent between 2019 and 2020, which may reflect employers’ reluctance to hire apprentices during the height of the pandemic (table 1), as reported by some of the state administrators in this study. By 2021, the number of new apprentices increased but remained below 2019 levels. The number of active apprentices nationally remained steady between 2019 and 2020, and increased in 2021 and 2022, but six states included in this brief experienced declines from

¹⁶ *New apprentices* refers to the apprentices registered during the period (the start date, not the registration date is used). *Active apprentices* includes registered, suspended, and reinstated apprentices. See “Registered Apprenticeship National Results Fiscal Year 2020 10/01/2019 to 9/30/2020,” Employment & Training Administration, accessed March 20, 2023, <https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2020>.

2019 to 2020 (table 1).¹⁷ In the discussion groups, state administrators shared that there was less participant interest in apprenticeships during the pandemic and that employers in some industries slowed their hiring of apprentices. Despite the overall decline in apprentices during the pandemic, some state administrators noted that the pandemic accelerated apprenticeship expansion into nontraditional industries, such as health care and teaching.

TABLE 1
Number of Active and New Apprentices Nationally and by State and Percent Change in Calendar Years 2020–22 relative to 2019

State	2019	2020	2021	2022
Active apprentices				
Nationally	715,142	722,363 (1%)	757,872 (6%)	802,506 (12%)
Arkansas	7,278	7,725 (6%)	8,816 (21%)	10,063 (38%)
Connecticut	7,319	7,211 (-1%)	6,929 (-5%)	6,928 (-5%)
Florida	17,080	16,281 (-5%)	16,275 (-5%)	16,131 (-6%)
Maryland	9,350	8,086 (-14%)	7,628 (-18%)	6,606 (-29%)
Minnesota	11,684	11,168 (-4%)	10,930 (-6%)	10,683 (-9%)
Michigan	23,805	22,922 (-4%)	23,369 (-2%)	24,140 (1%)
California	98,544	99,181 (1%)	102,666 (4%)	105,823 (7%)
Mississippi	3,627	3,445 (-5%)	3,660 (1%)	5,219 (44%)
New apprentices				
Nationally	254,108	209,767 (-17%)	238,931 (-6%)	265,534 (4%)
Arkansas	2,437	2,141 (-12%)	2,870 (18%)	3,311 (36%)
Connecticut	2,719	2,299 (-15%)	2,331 (-14%)	2,349 (-14%)
Florida	5,453	4,131 (-24%)	4,406 (-19%)	5,641 (3%)
Maryland	1,992	1,196 (-40%)	1,630 (-18%)	968 (-51%)
Minnesota	4,550	2,675 (-41%)	3,598 (-21%)	3,959 (-13%)
Michigan	6,386	5,969 (-7%)	6,222 (-3%)	6,426 (1%)
California	32,854	26,525 (-19%)	27,714 (-16%)	31,785 (-3%)
Mississippi	1,709	1,479 (-13%)	1,839 (8%)	3,147 (84%)

Source: Authors' calculation from Registered Apprenticeship Partners Information Data System (RAPIDS) data, obtained from DOL. Data for Minnesota are based on data provided by the Minnesota Department of Labor and Industry.

Notes: Red indicates a decrease in the number of apprentices compared to the previous year. Numbers indicate the number of apprentices active at some point during the calendar year. The percentages in parentheses indicate the percent change in the number of registered apprentices compared to 2019. *New apprentices* refers to the apprentices registered during the period (the start date, not the registration date is used). *Active apprentices* include registered, suspended, and reinstated apprentices.

¹⁷ According to Registered Apprenticeship Partners Information Data System (RAPIDS), the number of active apprentices refers to the active count at the end of a period minus apprentices who completed their programs or were cancelled during a period.

Low Wages, Long Apprenticeship Programs, and COVID-19 Disruptions May Have Contributed to Less Participant Interest in Apprenticeship

Half of the state administrators included in the discussion groups described less participant interest in apprenticeship programs during the COVID-19 pandemic compared with prepandemic levels. Of the states discussed in this brief, six experienced a decline in the number of active registered apprentices between 2019 and 2020 (table 1). Four state administrators credited higher wages in other nonapprenticeship occupations as a reason for less participant interest in apprenticeship, noting the ability for prospective participants to quickly make more money without completing on-the-job learning. One state staff noted that it is hard for apprenticeship programs to compete when entry-level jobs have signing bonuses. On the other hand, California’s administrator noted a lot of participant interest in construction occupations due to their high wages, citing as an example that union journeyman pipefitters can earn up to approximately \$115 an hour.

Some state administrators also noted that participants had less interest in apprenticeships because of the length and time commitment (up to four years) of apprenticeship programs.¹⁸ Two state staff said prospective participants were not ready to start long-term commitments in apprenticeship programs, with Mississippi staff reporting that apprentices were not as eager to register for long apprenticeship programs as they may have been before the pandemic. One state administrator noted that state work rules implemented for occupational health and safety during COVID-19, such as personal protective equipment policies, may have deterred prospective participants from entering apprenticeships.

I’ve talked to a lot of different programs and the wage progression is one of the biggest issues when across the street from our two-year colleges there’s a signing bonus to work at a fast-food restaurant for \$2,000 to \$3,000 and their wages are higher than apprenticeship program wages. How do you compete with that?

—State apprenticeship administrator

For apprentices already participating in programs, two state administrators described apprenticeship attendance as a challenge during the pandemic because of COVID-19 quarantines, contracting COVID-19, taking leave of absences, or having family members in vulnerable positions. Some sponsors in Minnesota reportedly reduced their related technical instruction hours from 240 to 144 hours to accommodate apprentice attendance challenges. One state staff said that some apprentices left their programs because they did not have a mentor, which employers are required to

¹⁸ It is typical for Registered Apprenticeship programs to require 1,000 to 2,000 hours of OJL, but in some cases, an apprenticeship program may require more OJL hours depending on the program and state requirements.

provide as part of OJL (see box 3).¹⁹ Another state administrator mentioned tardiness and failed drug tests as additional reasons why young apprentices exited their programs within the first six months. Despite these difficulties, two state staff noted that apprentice retention is no longer a challenge as of early 2023, and that in the past year they had more apprentice completions than cancellations.

BOX 3

Maintaining the Mentor to Apprentice Ratio Was Reported to be a Challenge during the COVID-19 Pandemic

In discussions for this study, two states described challenges with meeting the required mentorship apprentice ratio for OJL, which occurs concurrently with or after the apprentice completes their related technical instruction. The mentor to apprentice ratio can vary by occupation and state and could be 1:1 for example. One state noted that without mentors some apprentices left their programs.

Some Employers Were Reluctant to Hire New Apprentices during a Time of Economic Uncertainty, But No Mass Cancellations of Apprenticeships were Reported

Four state administrators noted that across industries, they did not observe large scale cancellations of apprenticeship programs but said that employers did not hire new apprentices or backfill spots as apprentices completed their programs. All state staff discussed in this brief experienced a decline in the number of new apprentices between 2019 and 2020 (table 1). One state staff noted that employers tended to not backfill spots as apprentices completed their programs and that employers were hesitant to invest in a four-year apprenticeship program during a time of economic uncertainty. This state administrator said, “Taking on an apprentice as a four or more-year program requires a pretty high level of confidence that they can employ that person and continue to increase pay over long term ... employers weren’t ready to start long term commitments to employees.” Minnesota’s administrator noted that employers reduced their demand for apprentices, specifically in the pipefitting and building trades industries because of a decrease in demand for gas and service work in office buildings as people worked from home during the pandemic.

Although some state staff described how employers were hesitant to hire apprentices during the COVID-19 pandemic, two state staff observed hiring growth in construction. The administrators of Maryland and Arkansas noted that their states prioritized infrastructure and construction projects, with the construction industry exempt from Maryland stay-at-home orders. Maryland’s State Highway Administration accelerated a road resurfacing project because it was more convenient to complete the project with people off the roads. Arkansas staff noted that a major employer expanded their

¹⁹ Official guidance from the Office of Apprenticeship on reviewing mentor to apprentice ratios is available on Employment & Training Administration. 2021. “Guidelines for Reviewing Apprentice to Journeyworker Ratio Requests.” Washington, DC: Department of Labor. <https://www.apprenticeship.gov/sites/default/files/bulletins/Circular%25202021-02%2520FINAL%25201.12.21.doc>.

operations with building projects at the company headquarters during the pandemic. Both state administrators noted that employers increased their hiring of construction apprentices during the pandemic. In fact, the Arkansas administrator said they had difficulties meeting employer demands despite increased apprentice enrollment.

Expansion into Nontraditional Industries, Like Health Care and Education, Accelerated during the COVID-19 Pandemic to Address Workforce Shortages and Meet Employer Demand

Although states expanded apprenticeship programs to nontraditional industries, such as information technology and health care prior to the pandemic, state administrators described accelerating expansion during the COVID-19 pandemic in response to employer demand and staffing shortages.²⁰ According to RAPIDS, nationally, from 2019 to 2022 the number of active registered apprentices increased in several nontraditional industries, including education and health care and social assistance (figure 3). Three state staff noted that the pandemic accelerated their expansion into health care and education because of the increased nursing and teacher shortages resulting from the pandemic. One state administrator noted, “We have seen a big decline in the [jobs in the] health care industry during COVID because of the strain put on the health care system, the nurses, the doctors, but it also demonstrated our need to reach out and grow new apprenticeships in health care.”

FIGURE 3
National Increases in the Number of Registered Apprentices in Select Nontraditional Industries from 2019 to 2022



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Source: Authors’ calculation from Registered Apprenticeship Partners Information Data System (RAPIDS) data for states that report industry and occupation information. Many Joint Apprenticeship Training Committees (JATCs) in the building trades report educational services as their industry. These JATCs are not included in the calculation of apprentices in the education services industry. In 2019, the number of Registered Apprentices in education services was 18,838 and it increased to 26,709 in 2022. In 2019, the number of Registered Apprentices in health care and social assistance was 13,558 and it increased to 23,060 in 2022.

²⁰ Prior to and during the COVID-19 pandemic, DOL invested in state apprenticeship expansion into nontraditional industries by issuing various grants to states expand apprenticeship into non-traditional industries. Grants include the State Apprenticeship Expansion grants, Scaling Apprenticeship grants, Closing the Skills Gap grants, and Building State Capacity grants, among others. All states who participated in the study received at least one DOL grant prior to or during the pandemic. See “Active Grants and Contracts,” Apprenticeship USA, 2023, <https://www.apprenticeship.gov/investments-tax-credits-and-tuition-support/active-grants-and-contracts>.

Connecticut’s administrator noted that employer demand for health care apprenticeships increased during the COVID-19 pandemic, which compounded an already difficult situation with an aging workforce nearing retirements in industries like education, manufacturing, and building trades. Two state staff noted that the so-called “Great Resignation,” where people left their jobs in pursuit of something else, also offered an opportunity to grow apprenticeship programs to meet this new demand.²¹ One state administrator noted, “I think apprenticeship gives people the opportunity to do [something different] without going into debt. You can scale up or completely change your occupation.”

The severe shortages that are likely a result of the pandemic has made a lot of people reconsider and rethink how we are going to train people to do these jobs; with both nursing and teaching we’re seeing employers...think about, how do we take someone in a pathway...and get them trained up, do an apprenticeship program through the university and end up getting your degree free of charge?

—State apprenticeship administrator

To respond to the changing employer needs during the COVID-19 pandemic to address education and health care shortages, five state administrators described how they started or expanded health care apprenticeship programs, and four described starting or expanding teaching, specifically teaching, apprenticeship programs. One state administrator noted, “We have so many inquiries about getting new programs [in health care and teaching] started, it’s just crazy.” Two state staff described plans to start teaching apprenticeship programs in their states to address teacher shortages. Connecticut’s state legislature plans to discuss how to transition people into teaching careers through apprenticeship programs. California’s administrator said they are working closely with educational programs to also develop teaching apprenticeships and they anticipate changes to their state legislation to support health care, teaching, and public sector apprenticeships. Michigan staff used virtual platforms to increase apprenticeships in nontraditional industries in response to the slow hiring of apprentices in traditional industries, noting that their highest level of growth was in health care apprenticeships.

²¹ The Great Resignation occurred during the COVID-19 pandemic in 2021. For more information see Gittleman, Maury. 2020. *The “Great Resignation” in Perspective*. Monthly Labor Reviews. Washington, DC: U.S. Bureau of Labor Statistics. <https://www.bls.gov/opub/mlr/2022/article/the-great-resignation-in-perspective.htm>.

Lessons for the Future: What Will the Apprenticeship System Look Like Post-COVID?

For apprenticeship administrators included in this study and their partners, the COVID-19 pandemic required quick adaptation to a virtual environment, but some apprenticeship administrators considered it an opportunity for staff and their partners to rethink how operations within the apprenticeship system can meet apprenticeship goals. All eight of the state administrators interviewed reported that they and their training partners will continue to be flexible to offer remote and hybrid service delivery and training to expand their reach, supplemented by in-person opportunities to learn, especially for hands-on programs, and to review apprenticeship program compliance virtually through apprenticeship records and data.²²

The state apprenticeship agencies included in this study described their plans to continue offering some remote services and training post-COVID. Minnesota plans to continue their engagement efforts virtually, especially with employers, allowing them to reach more partners compared to in-person engagement. Similarly, Michigan plans to continue hosting virtual apprenticeship launch sessions to reach partners more easily across the state. State administrators included in this study described plans to conduct apprenticeship program reviews with some virtual components depending on the program and noted that in-person program reviews are still valuable.

We will keep all of the online options because they're so much easier than driving three hours to meet with someone.

—State apprenticeship administrator

Six state administrators said training partners in their states will continue hybrid and remote learning for at least some of their programs, while noting that certain hands-on programs will continue in-person instruction. Two state staff agreed that hybrid learning will continue, especially in rural areas where apprentices can more easily attend classes remotely rather than having to travel long distances to class. Connecticut staff noted that asynchronous learning will likely continue because of the increased attendance rates online and the flexibility online learning offers to apprentices.

²² The term *hybrid* describes a mix of both in-person and remote activities, including remote learning and virtual meetings. This is distinct from DOL's definition of hybrid approach to registered apprenticeship programs, in which apprentices are required to both demonstrate competency and meet a minimum of on-the-job training (OJT) and related technical instruction (RTI) hours. For more information see "At-a-Glance: Three Approaches to Apprenticeship Program Completion," Employment and Training Administration, U.S. Department of Labor, accessed March 30, 2023, https://www.doleta.gov/oa/pdf/Three_Approaches_Apprenticeship_Program_Completion.pdf.

State apprenticeship systems adapted to the demands of the COVID-19 pandemic, posing new questions about the future of apprenticeship in a hybrid environment. Florida's administrator noted that new questions they have not before considered have emerged, such as, "If you have a virtual IT program, and they can do all of the OJT virtually, you start asking where does the jurisdiction stop? What are we confined by? Can you be an apprentice and live outside of the state? Can the company have projects outside the state?" Although state administrators may not have the answers to all these questions right now, they remain open to the possibilities remote environments may have on the state apprenticeship system in the future.

For more resources on delivering apprenticeships virtually please visit <https://www.apprenticeship.gov/delivering-apprenticeships-virtually>.

Appendix

Information Collection and Limitations

We used a purposive selection strategy to choose eight states (Arkansas, California, Connecticut, Florida, Maryland, Michigan, Minnesota, and Mississippi) to include in this study. The study will result in eight briefs on different topics related to state efforts to expand apprenticeship.

State selections were made based on specific criteria related to the topics of interest for the broader study to ensure the collection of information on experiences and characteristics related to those topics. Additionally, we wanted to ensure the selected states had a range of state apprenticeship system characteristics. Criteria included the following:

- had at least one identified financial incentive
- diversity in the characteristics of the apprentices
- had at least one identified strategy for recruiting employers
- had more than 40 percent apprentices in non-building trades
- had a data infrastructure system
- presence of rural or opioid apprenticeship strategy
- received at least two federal grants for apprenticeship expansion

Data sources used to examine the above criteria included RAPIDS data, a 2021 report from the National Conference of State Legislatures, and a 2022 report by Mathematica and the Urban Institute that examined the capacity of state apprenticeship systems.²³ Twenty-six states met the criteria above and from there, eight states were selected based on diversity by region, having a mix of states that register apprenticeships through the DOL Office of Apprenticeship (OA states) or through State Apprenticeship Agencies (SAA states), the number of active apprentices in the state, and overall variation across the topics where the states had relevant activity.

Authors conducted two 90-minute virtual focus groups, referred to as discussion groups in this brief, with eight total high-level apprenticeship administrator staff to learn about their experiences during the COVID-19 pandemic.²⁴ Each discussion included four states. Focus groups used a

²³ See Jacquinet, Landon. January 2021. "Incentives for Apprenticeships." Denver, CO: National Conference of State Legislatures. <https://www.ncsl.org/research/labor-and-employment/incentives-for-apprenticeships.aspx>.

See Harrington, Alicia, Ryan Ruggiero, Samina Sattar, and Lauren Eyster. May 2022. *Understanding the Capacity of State Apprenticeship Systems*. Washington, DC: Urban Institute and Princeton, NJ: Mathematica. https://wdr.doleta.gov/research/FullText_Documents/ETAOP_2023_03_Understanding_the_Capacity_of_State_Apprenticeship_Systems.pdf.

²⁴ One staff from each of the following agencies were included in our discussion groups: Arkansas Department of Commerce, Office of Skills Development; California Department of Industrial Relations, Division of Apprenticeship Standards; Connecticut Department of Labor, Office of Apprenticeship; Florida Department of Education; Maryland Department of Labor, Apprenticeship and Training Program; Michigan Department of Labor and Economic Opportunity; Minnesota Department of Labor and Industry; and Mississippi Department of Employment Security, Office of Apprenticeship.

semistructured protocol and authors conducted them in December 2022 and January 2023. The authors conducted applied thematic analysis using qualitative data from the discussions, coding the text to align with the research questions to identify themes and multiple perspectives. However, there are a few limitations to this approach. The study reflects the experiences of eight states and should not be considered representative of all states' experiences. Additionally, because of time constraints and the nature of the discussions, all states did not contribute to every question, and at times, different topics were discussed across groups. Therefore, counts of state responses only refer to how many states provided information during the discussion. In certain instances, states may have had similar experiences that they did not mention in the discussion, and therefore may not be included in counts.

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