NONCREDIT CAREER AND TECHNICAL EDUCATION PROGRAMS IN VIRGINIA

Early Findings from the FastForward Study

By Betsy Tessler, Kelsey Brown, and Di Xu

cross the country, as technology continues to advance rapidly, the labor market exhibits a growing need for workers who receive frequent and ongoing skill development.¹ Employers in many fields encounter difficulties finding adequately trained workers to meet their needs. Community college noncredit career and technical education (CTE) programs are an important contributor to skill and workforce development and help to close this "skills gap." Approximately five million students enroll in community college noncredit programs nationally (more than half in CTE programs), which represents 41 percent of the total enrollments in the community college sector.³ Postsecondary CTE programs are highly focused on preparing learners for jobs—and potentially careers—in a specific industry and are much shorter in duration than the typical community college credit-bearing program or university degree program. For populations that are underserved and underrepresented in academic and degree-seeking programs, noncredit CTE programs may offer an alternative route to economic self-sufficiency and mobility.⁴

In 2016, the Commonwealth of Virginia established the New Economy Workforce Credential Grant Program, implemented as the FastForward program, to address the skills gap in Virginia. The purpose of the program is to create and sustain a supply of credentialed workers for high-demand occupations in Virginia—that is, occupations that local industries define as needing workers. There is often little regional variation in these high-demand occupations. Common



examples of FastForward programs include Welding, Clinical Medical Assistant and Phlebotomy Technicians (for the health care field), and Commercial Driver's License (for short- and long-haul trucking).

FastForward provides a pay-for-performance model for funding noncredit CTE programs that are delivered through the Virginia Community College System (VCCS) and that lead to a credential in a high-demand field.⁷ The pay-for-performance model offers a monetary incentive for students who are domiciled in Virginia to perform well and for colleges to ensure those students earn a credential.⁸ Costs are shared by the state, students, and the college, depending on student and institutional performance. Typically, the student is responsible for paying a third of the cost of tuition upon enrollment in the program (though many colleges obtain additional funding to help cover this payment). If the student completes the program, the college pays another third of tuition; the student pays if they do not complete the program. And if the student earns the related industry credential, the state pays the final third of tuition. (Otherwise, the college pays the final third). One important aspect of the New Economy Workforce Credential Grant Program is its mandate on the systematic, statewide collection of student-level noncredit CTE data on program enrollment, program completion, industry credential attainment, and labor market outcomes.

There is a dearth of research on noncredit CTE programs because noncredit students are typically not included in state and national postsecondary data sets. As a result, very little is known about the percentage of students who complete noncredit programs, their labor market outcomes, or the extent to which they go on to enroll in credit-bearing programs—especially for students from underrepresented groups. In addition, little is known about how students learn and make decisions about enrolling in these programs, what students' ultimate goals are, how institutions support students in noncredit CTE programs, which factors affect noncredit students' postsecondary educational and labor market outcomes, and whether the benefits of participating in noncredit CTE programs vary across students and programs. The limited information about noncredit programs has imposed significant barriers to understanding the effectiveness of workforce development policies and programs for adult learners. The Noncredit Career and Technical Education Study at the Virginia Community College System, also referred to as the FastForward study, is beginning to fill this gap.

Overview of the FastForward Study

The study of FastForward is being conducted as part of a research partnership between MDRC; the University of California, Irvine (UC Irvine); the University of Virginia (UVA); and VCCS.⁹ The study is funded by the U.S. Department of Education's Institute for Education Sciences.¹⁰ Carnegie Corporation of New York provided seed funding for MDRC's qualitative component of the research.¹¹ Lumina Foundation is funding UC Irvine and UVA's quantitative component.¹² The study, which started in 2022 and spans three years, is exploring the implementation of FastForward in the 23 colleges that are part of VCCS—a mix of large and small colleges, with campuses located in rural, suburban, and urban settings across the state. A total of 44,651 students enrolled in at least one FastForward program from its inception in the 2017 fiscal year (July 2016 to June 2017) until the 2022 fiscal year (July 2021 to June 2022). The colleges have a great deal of discretion in how they structure and deliver FastForward programs, which credentials they offer, and how they support learners.

The FastForward study is focused on understanding institutional and program factors that may influence learners' academic and labor market outcomes. The study's descriptive and quasi-experimental analyses use a combination of VCCS administrative data, National Student Clearinghouse data, unemployment insurance wage records, and administrator and instructor surveys—as well as staff and partner interviews, student focus groups, and classroom observations at six colleges—to uncover core evidence about the eight noncredit CTE programs that had the highest enrollment and were part of FastForward.¹³ This brief presents findings on the different approaches used by colleges and programs to deliver training, student and staff experiences in these CTE programs, and students' academic and labor market outcomes. The FastForward study aims to produce findings and lessons that will have implications for similar noncredit CTE programs at community colleges across the country.

Selecting Colleges for In-Depth Data Collection

The study's research plan included in-depth qualitative data collection from a subset of the 23 colleges in the VCCS. For the first round of data collection, the goal was to select five to seven colleges that reflected the variation in the geographies, demographics, and academic offerings of the wider group of colleges and offered some combination of the eight FastForward programs with the highest enrollment.

MDRC's qualitative research team worked with its three partners to review administrative data and other publicly available information about the 23 colleges, any of the eight FastForward programs in Virginia with the highest enrollment that each college offered, and the students they served from the 2016–2017 school year through the 2020–2021 school year. The team reviewed the average number of students enrolled during those school years in each of the eight FastForward programs with the highest enrollment at each college; the average proportion of classes offered online; the average duration of the programs; the year those programs were first offered; the frequency with which the programs were offered; the average age of the students in the program; the students' race, ethnicity, and gender; and the percentage of students who received a credential within six months of program completion. The team also reviewed the location and urbanicity of all the colleges—that is, whether they are urban, suburban, or rural—how close they are to bordering states, and the ratio of the student body population to the population of the surrounding area.

The team used a statistical method to cluster colleges into "blocks." Each block contained a group of colleges that shared some key similarities, and each block differed from the other blocks, on average, in a range of characteristics. The team then chose one college from each block—conferring internally and with its partners to determine which college within each block would uniquely represent the variation of all 23 colleges in terms of its demographics, geography, and configuration of course offerings. The team ultimately decided to make in-depth qualitative visits to seven colleges: Camp Community College, Danville Community College, Germanna Community College, Laurel Ridge Community College, Patrick & Henry Community College, Southwest Virginia Community College, and Virginia Peninsula Community College. (See Figure 1.)

NORTHERN LAUREL VIRGINIA **RIDGE** COLLEGE **GERMANNA BLUE RIDGE EASTERN SHORE PIEDMONT** COLLEGE **MOUNTAIN** VIRGINIA **SOUTHWEST** VIRGINIA **GATEWAY RAPPAHANNOCK** REYNOLDS WESTERN COLLEGE COLLEGE COLLEGE CENTRAL VIRGINIA NFW COMMUNITY **BRIGHTPOINT MOUNTAIN** COLLEGE **RIVER** COMMUNIT COLLEGE **EMPIRE SOUTHSIDE VIRGINIA** COLLEGE **VIRGINIA PENINSULA** COLLEGE **DANVILLE** WYTHEVILLE COMMUNIT COLLEGE **CAMP** COMMUNIT COLLEGE VIRGINIA **TIDEWATER HIGHLANDS** PATRICK & HENRY

Figure 1. Virginia Community College Locations

SOURCE: Virginia's Community Colleges, "Virginia Education Wizard" (website: https://www.vawizard.org/wizard/home, n.d.)

NOTE: Orange locations indicate colleges that the research team selected for qualitative data collection.

Qualitative Study Preliminary Findings

MDRC's qualitative research team visited six of the colleges in the spring and summer of 2023.¹⁴ At each college, the team interviewed administrators, staff members, and instructors; held focus groups with students; and (in some cases) observed classes. (See Table 1.) While most FastForward courses were largely populated by students who qualified under the FastForward pay-for-performance model, which requires participants to be domiciled in Virginia, they also included students who did not qualify. So someone from a neighboring state could enroll in a FastForward class and earn a credential but would not be considered a FastForward participant. Similarly, the college staff members who managed FastForward programs also managed other noncredit CTE programs that did not meet the FastForward criteria (for example, if they targeted fields that were not in high demand or if they did not lead to an industry-recognized credential). In this sense, FastForward was not a separate program with a dedicated staff as much as it was a way to categorize, package, and market a set of CTE programs for high-demand fields and offer a unique model to fund tuition for those programs.

FastForward Staffing

At the six colleges, FastForward was situated in the division of the college that focused on workforce training and continuing education. Typically, the lead administrator of this division, usually the director, dean, or vice president, oversaw all noncredit training programs—both those that were included under FastForward and those that were not. This person also served as the chief workforce officer. Chief workforce officers are the leaders who focus on workforce development training at a college, which

Table 1. Number of Staff Members Who Were Interviewed at Each College, by Role

Role	Camp	Danville	Germanna	Laurel Ridge	Patrick & Henry	Virginia Peninsula
Director/ dean/vice president	1	1	2	1	2	1
Career or college transfer services			1		1	
Executive assistant	1		1		1	
Operations/ program manager				4	1	4
Coach/ advisor	1	1	1		2	1
Enrollment/ registration	3		6	2		5
Marketing/ recruitment ^a				1	1	
Financial aid			1	1		
Instructor ^b	1	2	4	2	3	2

NOTES: ^aThe marketing and recruitment staff members who were interviewed served the entire college, not just the FastForward programs.

^bInstructors from Germanna and Virginia Peninsula were also training program managers. In addition to teaching, they supervised the other instructors.

is typically offered through noncredit classes (including classes that were classified as FastForward classes) or customized contract training.

Instructors were mostly adjunct faculty members who came directly from the industries they taught about. Some instructors had retired from their industry jobs; some continued to work. Instructors were often supervised by a manager who oversaw all the noncredit training programs under one or more industry areas (such as health care or manufacturing). Those managers were sometimes regular faculty members who also taught noncredit classes, credit-bearing classes, or both.¹⁶

Each college had staff members situated in support roles—such as FastForward coach, other advisor, or staff member in another role—who worked one-on-one with students to help alleviate obstacles and support their persistence in the program. They also all had an enrollment team. The team included an enrollment specialist, who helped prospective students with applications—including financial assistance applications, in some cases—and, occasionally, with choosing a training program. The team frequently included a financial aid specialist who worked, often behind the scenes, to make sure students received the full amount of financial aid they were eligible for and confirm they were domiciled in Virginia. Less frequently, the colleges had an outreach and recruitment specialist and a career services or employment specialist who helped students prepare for employment and find jobs. These staff members generally served the student body as a whole, not just the workforce division.

While there is not a uniform model for how to deliver FastForward programs in Virginia's community colleges, the FastForward coach is one defined staff role. Among the six colleges that the qualitative research team visited, only three had a designated coach or advisor for FastForward students, and the role those coaches played differed—some focused on helping students enroll in a FastForward program, while others played more of a role keeping students engaged after enrollment.

Financial Resources

Meeting Students' Nontuition Needs

Evidence from studies like the Accelerated Study in Associate Programs evaluation suggests that providing nontuition support to community college students can lead to substantial improvements in program completion rates. The six colleges that the qualitative research team visited had varying access to financial resources that could be used to support the nontuition needs of FastForward students. Some colleges had their own foundations and access to donors or competitive state resources that enabled them to meet every possible need—for example, they could give students gas cards or emergency cash for a car repair. Other colleges were less able to meet certain needs—especially the need for flexible emergency funds. Some colleges relied heavily on their local workforce agency, which was funded by the Workforce Innovations and Opportunities Act (WIOA), to provide support to FastForward students. WIOA can provide eligible participants with a range of support services, such as transportation vouchers or childcare assistance. Other colleges had no connection with their local WIOA workforce agency. At some of the colleges, the local WIOA agency had an office on campus, which helped students access its services. FastForward staff members did their best to make sure that all FastForward students were aware of the range of supports that were available to help them.

Meeting Tuition Needs

Each student had a customized financial plan. Financial Assistance for Noncredit Training (FANTIC) was available for students who qualified. Depending on the college, grants and WIOA individual training accounts (ITAs) were available—ITAs are essentially WIOA-funded scholarships for occupational skills training. Among the six colleges the qualitative research team visited, there was variation in who paid the initial third of the cost of tuition. At some colleges, staff members and FastForward students noted that the students paid the initial third of tuition out of pocket, generally because they could afford to. At other colleges, almost no students had to pay anything out of pocket, which made a very big difference for the many students who said they would not have been able to afford it. In many of these instances, scholarships, financial aid, WIOA ITAs, and grants were used by staff members to cover students' tuition, and students reported in focus groups that they frequently knew little about the financial assistance they were receiving except for the fact that there was no cost to them. At some colleges, however, students whose tuition was not covered by other sources had to pursue WIOA ITAs on their own, without the direct support of the college staff.

Establishing and Maintaining FastForward Courses

Instructors, staff members, equipment, and supplies were the greatest expenses for the FastForward (and other noncredit workforce) programs. Many of these programs require heavy equipment and major capital investment to start, and some of them—like welding and medical programs—have an ongoing need for "consumables" such as metals, fuel, syringes, and bandages. Some colleges hired staff members to supervise clusters of programs and their instructors and to serve as liaisons with

employers. In most colleges that the team visited, the workforce division was functionally separate from the academic division (in which courses were offered for credit). Staff members from multiple colleges noted that because of this separation, workforce divisions must fund themselves—that is, they need to cover all costs, including materials and staffing, with industry donations, tuition, or grant funds. A workforce division's available resources depend on the number of students enrolled in its noncredit CTE programs, its connection to industry partners that are willing to make financial and in-kind donations, and its access to other funds and donors.

FastForward Program Structure and Emphasis

The Virginia community colleges generally concentrated their resources on the beginning and middle stages of the training-to-employment process, focusing on recruiting students and making sure enrollees completed their classes and attained a credential. This aligns with key aspects of the FastForward funding model authorized by the New Economy Workforce Credential Grant Program. However, colleges had varying resources available to support students at the back end of the process—such as helping them find a job. Some colleges helped students find employment by making coaches or counselors available; those staff members often had other duties supporting the students while they were in training. FastForward students at some colleges were able to access resources, like career centers, through the academic division of the college.

The availability of noncredit-to-credit pathways varied across the colleges. Some colleges had, or were creating, processes that allowed students who had completed a FastForward (or other noncredit) program to receive credit for prior learning and continue in a credit-bearing certificate or degree program. This could be valuable to students because there is a wealth of evidence that demonstrates that academic degrees, including associate degrees, provide a strong pathway to economic mobility. However, because students often do not continue in a credit program and instead seek employment when they complete their FastForward program, some colleges have decided that it is not a worthwhile investment of time and resources to build these noncredit-to-credit pathways.

The FastForward Students' Experiences

MDRC's qualitative research team conducted focus groups with FastForward students from six colleges who were enrolled in programs that included Commercial Driver's License, CompTIA A+ (the Computing Technology Industry Association's information technology training), Clinical Medical Assistant, Phlebotomy Technician, and Shield Metal Arc Welding. The students were a mixed group—workers who had been sent by their employers to learn specific new skills and people who had signed up for a FastForward program on their own—and their wishes and motivations differed accordingly. Student workers who were sent by employers were training to get a credential, and they did not tend to think about continuing their education. Student focus group participants and instructors who were interviewed noted that student workers sent by their employers also needed less support than students who found their way to a FastForward program on their own.

Students in the focus groups who enrolled in a FastForward program on their own included both older people who were changing their career and individuals who had just finished high school. Most of them had never been to college before. These students often needed help choosing the credential they

wanted to attain, securing tuition funding, completing the program, taking their credentialing exam (and passing it), and finding a job. Because these programs are often very short—18 weeks on average, with some as short as 6 weeks—and move quickly, many counselors and coaches proactively reached out to students to help remove attendance and academic barriers and make sure they were able to stay engaged in their training. Given the fast-paced nature of these courses, missing just one day of class could cause students to fall behind. Staff members did not want students to fail to complete their programs and then become obligated to pay an additional third of the cost of tuition. Students generally had very positive things to say about the FastForward staff members (and other workforce staff members) and felt that they could go to them if they needed anything. Most students said they had sufficient financial aid to cover the initial third of tuition under the pay-for-performance model and that the FastForward program and the colleges were able to meet most of their nontuition needs. Some students said they never imagined they would be a college student and never would have been able to succeed without the support they received from the workforce staff and the FastForward program.

While FastForward training can lead to industry jobs with the potential for substantial career advancement and increased earnings, sometimes the entry-level jobs available to individuals who have a credential but do not have experience yet—even in the high-demand fields the students were training for—do not pay premium wages. This presented a challenge for some students in the focus groups who were not thinking about their careers in the long term. Most students were primarily interested in landing their first job in their field of study. But if the entry-level wage was not high enough, some students considered going back to the jobs they had before they started training (such as jobs in retail). Those jobs offered higher wages, in some cases—though they might not have provided opportunities for advancement. But many students entered the program with career plans and intended to persevere in the face of low entry-level wages, believing that they could advance in the field and earn more over time. Coaching or advising could play an important role in improving longer-term outcomes by helping students develop career plans to encourage persistence.

Quantitative Findings

Through the partnership with VCCS, UC Irvine and UVA's quantitative research team received access to data sources that showed the characteristics of students, their enrollment patterns in noncredit and credit-bearing classes, program completion and industry credential attainment rates, and labor market performance.²⁰ Four primary insights about FastForward programs are featured below.

Student Characteristics

FastForward programs enroll a substantially different segment of the population than credit-bearing programs. As shown in Figure 2, FastForward programs in Virginia enroll a higher share of Black students, male students, and older students than short-duration, credit-bearing programs at community colleges that typically require one year or less to complete. For instance, 33 percent of students who enrolled in FastForward programs are Black, compared with 25 percent of students in credit-bearing programs. From a postsecondary educational access perspective, noncredit CTE programs like FastForward may provide an important alternative pathway to skills and workforce opportunities

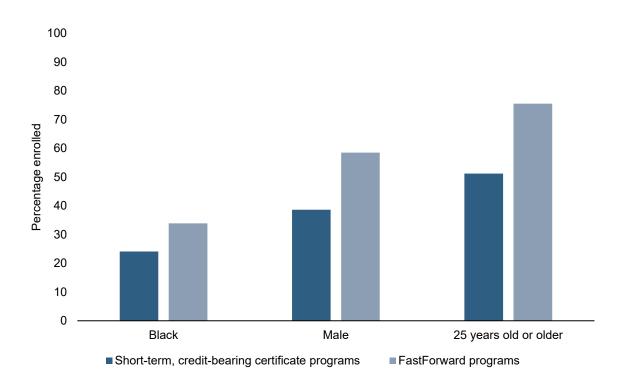


Figure 2. Student Characteristics by Program Type, Fall 2018 Term

SOURCE: Di Xu, Ben Castleman, Kelli Bird, Sabrina Solanki, and Michael Cooper, *Noncredit Workforce Training Programs Are Very Popular. We Know Next to Nothing About Them* (Washington, DC: Brookings, 2023).

for populations that are increasingly underrepresented in traditional higher education. This is particularly the case since 61 percent of FastForward enrollees have no prior or subsequent enrollment in any credit-bearing programs.

Enrollment Patterns

The vast majority of students (78 percent) enrolled in only one FastForward program and the average student enrollment duration was 18 weeks. This indicates that these programs are much shorter in duration than most traditional credit-bearing programs, which are typically at least 12 months long. While 36 percent of FastForward enrollees had prior credit-bearing enrollment, less than 20 percent of them had earned a degree or certificate—suggesting noncredit CTE programs may provide a pathway to training and industry credentials for students who were not successful in credit-bearing programs. However, there was limited student flow from FastForward to additional credit-bearing training programs. In fact, less than 12 percent of FastForward students pursued subsequent training in credit-bearing programs.

Program Completion and Industry Credential Attainment

Overall, FastForward programs had an extremely high program completion rate; 90 percent of the enrollees earned a letter grade of "satisfactory," indicating successful completion. Approximately 67

percent of the students obtained an industry credential. Although the overall credential attainment rates were high, among the individual programs the credential attainment rates varied. Some programs with high enrollment, like Commercial Driver's License, had high industry credential attainment rates (that is, 76 percent). However, other programs with high enrollment, like CompTIA A+, had much lower credential attainment rates (23 percent). An examination of these variations reveals that they are driven in part by differential credential attainment rates associated with programs in different fields of study (such as between Commercial Driver's License and CompTIA A+). But there were also variations in credential attainment rates when comparing the same program at different colleges. For example, the Commercial Driver's License program was offered at all 23 VCCS colleges, and the credential attainment rate ranged from 25 percent to 95 percent. Future research should unpack what caused the credential attainment rates to vary and identify factors that are associated with higher attainment rates and can reasonably be manipulated by institutions of higher education.

Labor Market Outcomes

To investigate the extent to which participation in noncredit CTE training may have improved students' employment and earnings outcomes, the quantitative research team merged college administrative data with employment and earnings data from the Virginia Employment Commission. The Virginia Employment Commission data contain quarterly earnings for all VCCS students before, during, and after their noncredit CTE program participation, which permitted estimations of the labor market impact of receiving an industry-recognized third-party credential after completing a FastForward program.²¹

Results indicate that earning an industry-recognized credential increased average quarterly earnings by approximately \$1,000. In addition, having a credential increased the probability of being employed by an average of 2.4 percentage points. There were substantial differences in the change in students' earnings depending on their field of study. For example, the fields of transportation (a related FastForward program is Commercial Driver's License) and precision production (Gas Metal Arc Welding) seemed to be associated with a particularly pronounced earnings premium. Researchers found substantial sorting by race, ethnicity, and gender across FastForward programs, but within programs, there was no significant differences in the change in earnings between student subgroups.

Conclusion and Looking Ahead

In the first year of the FastForward study, the research team has uncovered noteworthy findings about access to and success in noncredit CTE programs—training programs that have the potential to change the career trajectories and economic mobility of individuals who are underrepresented in, and underserved by, traditional credit-bearing community college programs. FastForward appears to be reaching a traditionally underserved segment of the population in Virginia, including more students who are Black, male, and more than 25 years old compared with the traditional community college population. And while about one-third of FastForward enrollees had prior credit-bearing enrollment, less than one-fifth of those enrollees had earned a degree or certificate. As such, FastForward could provide a route to skills training and good jobs for individuals who are not interested in, or were not successful in, a degree-seeking path. However, since transfer from noncredit programs into credit-bearing pro-

grams is low, advising students about the advantages of building on a FastForward credential—either by acquiring additional, related noncredit credentials (that is, "stacking") or enrolling in a certificate or degree program—could open up more pathways to economic mobility. Advisors could also help students manage expectations about entry-level wages and understand that progressing along a career path often results in higher wages over time.

There is a lot left to learn from the FastForward study and future explorations of noncredit CTE programs. MDRC's qualitative research team gathered detailed information about the FastForward programs at the six colleges that were visited in person. The team will continue to analyze those data to learn more about how the implementation of the eight FastForward programs with the highest enrollment varies among the six colleges. To capture details about FastForward program features and implementation at *all* of the colleges in the Virginia Community College System, researchers will administer both institution-level and program-level surveys at all 23 colleges in the second year of the study. Results from these surveys will be presented in a future report.

Drawing on multiple sources of data, including surveys, the quantitative team will further explore which factors of FastForward programs—that are within the control of administrators to influence—may contribute to better student academic and labor market outcomes, including credential attainment rates. Specifically, the team will observe how variation in the way the same program is designed and delivered at different colleges affects student success outcomes by comparing outcomes from colleges that the research team identifies as operating strong programs with outcomes from colleges that the team identifies as operating less-strong programs.

In addition to examining the overall relationships between program factors and student outcomes, the research team will further investigate whether these relationships are moderated by student characteristics—such as gender, race or ethnicity, and level of education before program enrollment—and why there is sorting by these characteristics across FastForward programs. Such analyses could guide institutional support efforts to increase future noncredit CTE program success among underrepresented groups.

The research team expects the analyses emerging from the FastForward study to provide lessons for noncredit CTE programs at community colleges across the country. Future studies may further test promising program features to build evidence about how best to improve the academic and labor market outcomes and economic mobility of students enrolled in workforce-focused training.

Notes and References

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- 2 Di Xu, Ben Castleman, Kelli Bird, Sabrina Solanki, and Michael Cooper, *Noncredit Workforce Training Programs Are Very Popular. We Know Next to Nothing About Them* (Washington, DC: Brookings, 2023).
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- Virginia Career Works, "Virginia's Strategic Workforce Dashboard: Job Exploration" (website: https://dashboard.virginiacareerworks.com:8088/superset/dashboard/8/?standalone=true, 2024).
- These programs must have the backing of at least three employers in the relevant industry to affirm that the training leads to a job that is in high demand.
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- 12 Lumina Foundation, "Grants Database" (website: https://www.luminafoundation.org/grant/2110-1114811/, n.d., accessed June 12, 2024).
- 13 Initially the team was focused on the 12 FastForward programs with the highest enrollment. The team learned that four of those programs were customized training programs for the Virginia Department of Transportation that were offered by just 1 of the 23 colleges in the Virginia Community College System. The four programs did not accept students who were not already Virginia Department of Transportation employees. Therefore, the research team eliminated those programs from the analysis and only focused on the eight programs with the highest enrollment. They are Certified Nurse Aide, Clinical Medical Assistant, Commercial Driver's License, CompTIA A+, Core-Introductory Craft Skills, Gas Metal Arc Welding, Phlebotomy Technician, and Shield Metal Arc Welding.
- 14 A visit to Southwest Virginia Community College was delayed because of personnel changes, and the college was ultimately eliminated from the study when it became clear that a research visit could not be conducted during the necessary timeframe for data collection.
- 15 Recently, colleges have begun combining the chief workforce officer role with the chief academic officer role (which was previously focused solely on college transfer and career technical degree

- programs) to ensure that college programming offers opportunities for students to move fluidly between noncredit and credit offerings. All chief workforce officers are part of the Workforce Development Advisory Council. This advisory council's role is specified in VCCS State Board, "Code of Virginia: Section 2B—Operation of the Virginia Community College System" (website: https://go.boarddocs.com/va/vccs/Board.nsf/goto?open&id=CGJNHR5EF6D7, n.d.).
- 16 At most colleges, there was a clear distinction between the noncredit and credit "sides" of the college. But the colleges differed in terms of how much they integrated marketing for their noncredit and credit programs, whether and how they offered credit for prior learning, and how much they facilitated noncredit-to-credit pathways.
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- 18 Michael J. Weiss, Alyssa Ratledge, Colleen Sommo, and Himani Gupta, "Supporting Community College Students from Start to Degree Completion: Long-Term Evidence from a Randomized Trial of CUNY's ASAP," *American Economic Journal: Applied Economics* 11, 3 (2019): 253–97.
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- 21 This estimation was done using a statistical model called a comparative individual student fixedeffects model. This estimation strategy holds constant the fixed characteristics of the individual that affect both credential attainment and labor market outcomes.

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NEW YORK 200 Vesey Street, 23rd Flr., New York, NY 10281 Tel: 212 532 3200 **OAKLAND** 475 14th Street, Suite 750, Oakland, CA 94612 Tel: 510 663 6372

WASHINGTON, DC 750 17th Street, NW, Suite 501 Washington, DC 20006

