Research Report

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How Colorado Community Colleges Used Funding for Short-Term Credentials

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About This Report

This report describes how the Colorado Community College System (CCCS) and six community colleges leveraged funding from Senate Bill 22-192 to provide financial support to individuals pursuing education and training that results in short-term credentials. Colorado is one of many states investing in short-term credentials, and relatively little is known about how different states and college systems are designing their programs. CCCS asked RAND to provide this analysis to inform future efforts by the state or system to invest in programs that lead to short-term credentials.

RAND Education and Labor

This study was undertaken by RAND Education and Labor, a division of RAND that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking. This study was sponsored by the Colorado Community College System, which oversees 13 public community colleges in Colorado.

More information about RAND can be found at www.rand.org. Questions about this report should be directed to Lindsay Daugherty at ldaugher@rand.org, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

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Summary

Issue

In 2022, the Colorado General Assembly appropriated $1.8 million in funding through Senate Bill 22-192 (SB 22-192) to support students at public institutions of higher education as they pursued short-term postsecondary credentials. This funding was part of a broader set of initiatives that the Assembly and the Colorado Department of Higher Education (CDHE) established to build stronger pathways to good jobs by improving short-term credentialing options and building them into "stackable" pathways of credentials that individuals could pursue over the course of their careers. The Colorado Community College System (CCCS) awarded $1.4 million in funding from SB 22-192 to six community colleges, and these colleges used the funding to cover student costs related to participation in noncredit and credit programs that awarded short-term credentials.

Colorado is one of many states providing funding to colleges and students for short-term credentials. A recent report found that as of 2022, 28 states had invested in short-term credentials, with 59 initiatives across these states accounting for $3.81 billion in funding (Murphy, 2023). Some state initiatives provided financial aid to students, while others provided funding to institutions for program development. These funding initiatives aim to address gaps in other federal and state funding for short-term credential programs and support low-income students in completing credentials and improving job opportunities.

Relatively little is known about the decisions that states are making to distribute funding for short-term credentials, the individuals who are receiving this funding, and the impacts of this funding on education and employment outcomes. CCCS, CDHE, and the colleges distributing funding from SB 22-192 had limited time to plan for the initiative, and limited bandwidth to evaluate the programs during or after implementation. CCCS asked RAND to provide evidence on how colleges distributed funding and the individuals who received funding under SB 22-192. This report can help to inform future efforts of Colorado leaders (and leaders in other state agencies and community college systems) as they design programs that offer financial support to individuals pursuing short-term credentials.

Approach

To learn how colleges distributed the funding, we analyzed implementation reports drafted by the six colleges and interviewed stakeholders at CCCS and each of the six colleges. To describe the individuals who received funding and their educational outcomes, we analyzed individual-level data provided by CCCS and the six participating institutions.

Unfortunately, this study was not designed to investigate the impacts of the program, as we

did not have data on non-recipients of funding, and the rollout of the program was not structured to facilitate a rigorous evaluation of impact. To fill this gap in our analysis, we gathered perspectives from college staff on impacts, and we leveraged evidence from the broader literature on college financial aid to consider what impacts of the program might be and assess how the benefits of the program may compare to its costs.

Key Findings

The state and system provided relatively few requirements around how colleges could distribute the funding, and college decisions about how to distribute funding varied. We assessed the different approaches colleges used according to five features that commonly characterize financial aid programs (Table S.1). CCCS and the colleges were constrained by a tight timeline for distributing funding, so some decisions were driven by the practicality of using funding quickly rather than careful strategic determinations aimed at maximizing impact.

We also described the individuals who received funding, which programs they enrolled in, and whether they completed credentials. Key findings include:

- The $1.4M in CCCS funding helped to support 844 individuals enrolling in noncredit and credit programs across the six colleges.
- There was a higher percentage of Hispanic students and a lower percentage of white students among funding recipients than among the overall population across the six colleges. The gender and racial/ethnic composition of recipients was otherwise similar to that of the six colleges.
- More than half of the recipients were pursuing health care programs. Other recipients spanned a range of fields that were generally aligned with those prioritized in SB 22-192.
- Recipients were pursuing a range of different credentials, including noncredit industry credentials (12.4 percent), noncredit and credit certificates (20.5 percent and 25.4 percent), and degrees (31.0 percent). Recipients in degree programs may have used the funding to pursue short-term credentials that were embedded within degree pathways.
- The majority of noncredit training participants (81.7 percent) had successfully completed their training as of fall 2023.
- The majority of recipients in credit-bearing programs completed as of fall 2023 (36.6 percent) or were still enrolled (28.4 percent) as of fall 2023 or spring 2024.

We were unable to assess the impacts of the program because we only had data on funding recipients. We asked college staff to provide perspectives on impact, and staff reported favorable impressions of the programs, viewing them as supporting some students to complete credentials. Leveraging estimates from the broader literature on the impacts of financial aid programs and the lifetime value of credentials, we conducted a notional cost-benefit analysis and found that under certain assumptions, the program may produce a return on investment of more than $2 million.

Table S.1. Key Findings on How Six Colorado Institutions Distributed SB 22-192 Funding

Feature	Key Findings
Program eligibility	• Some colleges supported students across a broad range of programs, while others targeted a few programs (e.g., software bootcamps, construction) • When colleges targeted broadly, health care and human services programs tended to be prominent • Students were pursuing a range of credentials from industry certifications to certificates to associate's degrees • Colleges chose programs based on four main criteria: (1) where there were funding shortages, (2) where there were labor market needs, (3) where programs could be expanded quickly, and (4) where colleges had new partnership opportunities to leverage
Student eligibility	• All colleges required attestation of economic loss, but approaches to gathering the information varied • Most colleges did not set additional requirements for receiving funding, but colleges that targeted specific programs often had program participation requirements – Two colleges targeted the funding to programs that exclusively served incarcerated populations – Two colleges assessed readiness for entrants to software bootcamps – One college required individuals pay $500 toward bootcamp tuition to be eligible
Award amount	• The average grant varied in size from $9,091 at Front Range Community College to $868 at Red Rocks Community College • Some colleges awarded relatively few large grants for expensive programs, while some colleges awarded many small grants
Use of funds	• Three colleges used the funding to cover unpaid balances or additional costs – One college described covering balances as valuable because it helped students afford education-related expenses • Three colleges used funding for other costs: – Books and supplies – Travel and clinical costs for nurses – Nail technician kits – Testing and licensing fees
Application requirements	• Overall, students had relatively few application requirements (a single document to attest economic loss) • Attestation processes varied slightly across colleges, with some being more or less burdensome for students

Recommendations

The analysis in this report is descriptive, so we are cautious in making strong recommendations. But we suggest that CCCS, CDHE, and other key stakeholders consider three actions related to future short-term credential investments.

Recommendation 1: Consider whether or how the state might pursue a longer-term, sustainable approach to funding participation in short-term credentials. As a one-time coronavirus disease 19 pandemic relief-funded program, SB 22-192 offered a limited investment in short-term credentials as a key workforce development strategy in Colorado. It will be important for policymakers to consider whether the state's current investments in short-term

credentials are sufficient, or whether additional longer-term initiatives in financial support for students or institutions might be beneficial in filling gaps.

Recommendation 2: Design future programs intentionally, considering how decisions about different program features might shape impact. Legislators and state and system leaders should first consider how funding would be distributed, whether as grants to institutions (the SB 22-192 approach) or as a direct financial aid program to students. Colorado can then draw on evidence from other financial aid programs to consider how best to design the program in terms of which programs and credentials should be eligible, whether programs are limited to certain students, the generosity of the program and how the funding can be used, and the processes for students and colleges to access funding. The research evidence on traditional financial aid programs points to these features as shaping the effectiveness of programs. For example, programs can restrict awards to fields or credentials with higher returns, target grants to low-income students, and award larger grants. But these decisions involve tradeoffs: restricting awards to certain fields or credentials may limit access to funding for students outside those fields, awarding larger grants may mean that fewer students can receive a grant, and targeting low-income students may add administrative burden. CCCS and CDHE leadership can draw on the evidence from this report and the broader research literature to design future funding initiatives in ways that might enhance effectiveness.

Recommendation 3: Collect and assess additional evidence on the impact of initiatives. This report provides an initial look at the implementation of SB 22-192, but we were unable to examine impacts. Additional analysis could leverage non-recipient data and outcomes data for recipients and non-recipients to explore the possibilities for establishing comparison groups and start to estimate the impacts of the program. More intentional approaches to rollout (e.g., lotteries) and additional data on employment outcomes (e.g., earnings data from unemployment insurance) could also contribute strong evidence on impact.

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Chapter 1. Introduction

In 2022, the Colorado General Assembly appropriated $1.8 million in funding through Senate Bill 22-192 (SB 22-192) to support students at public institutions of higher education as they pursued short-term postsecondary credentials. This funding was part of a broader set of initiatives that the Assembly and the Colorado Department of Higher Education (CDHE) established to build stronger pathways to good jobs by improving short-term credentialing options and building them into "stackable" pathways of credentials that individuals could pursue over the course of their careers. The Colorado Community College System (CCCS) awarded the funding from SB 22-192 to six community colleges, and these colleges used the funding to cover student costs related to participation in noncredit and credit programs that awarded short-term credentials.

Colorado is one of many states providing funding to colleges and students for short-term credentials. A report found that as of 2022, 28 states had invested in short-term credentials, with 59 initiatives across these states accounting for $3.81 billion in funding (Murphy, 2023). Some state initiatives provided financial aid to students through direct grants or grants to institutions, while others provided funding to institutions for program development. However, relatively little is known about the decisions that states are making to distribute this funding, the individuals receiving funding for short-term credentials, and the impacts of this funding on education and employment outcomes.

CCCS asked RAND to provide evidence on how colleges distributed funding and the individuals receiving funding under SB 22-192. To learn about how colleges distributed the funding, we analyzed implementation reports drafted by the six colleges and interviewed staff at CCCS and each of the six colleges. To describe the individuals who received funding and their educational outcomes, we analyzed individual-level data provided by CCCS and the six participating institutions. The study was not designed to investigate the impacts of the program, but we leverage evidence from the broader literature on college financial aid to consider what impacts of the program might be and assess how the benefits of the program may compare to its costs.

In Chapter 2, we provide additional background information relevant to the study, and in Chapter 3, we describe our study approach. In Chapter 4, we outline our descriptive findings on the program. In Chapter 5, we use our evidence on costs and the broader research literature on financial aid impact and credential returns to conduct a notional cost-benefit analysis. In Chapter 6, we discuss the implications of these findings for Colorado and for the growing investments states are making in financial aid programs for short-term credentials.

Chapter 2. Background

The Expansion of Short-Term Credentials

Historically, the U.S. postsecondary education system and community colleges have focused primarily on preparing individuals through degree programs. However, more recently colleges have expanded the opportunities for students to earn shorter-term postsecondary credentials. These include occupational credentials awarded to individuals by third-party organizations and certificates, which are awarded by colleges for programs that require less than two years of coursework. According to the U.S. Department of Education, there was a large increase in short-term credential awards during the Great Recession, and since that time, approximately one million certificates have been awarded by U.S. colleges each year (National Center for Education Statistics, 2023).

Federal and state investments in short-term nondegree programs have expanded greatly in recent years. For example, states have made changes to their institutional funding formulas to provide more incentives for colleges to encourage certificate completion (Li and Ortagus, 2019; Ness, Deupree, and Gándara, 2015), and colleges have allocated economic recovery funds from the Great Recession programs (U.S. Department of Labor, undated) and coronavirus disease 19 (COVID-19) to funding for short-term training. Federal financial aid is available for many of the certificate programs students enroll in (programs at least one semester long), and public need-based financial aid programs have expanded substantially in their funding and reach due to increased student demand and program generosity (Pew Charitable Trusts, 2019).

One of the potential benefits of short-term credentials is that they might provide onramps into college and new job opportunities for individuals who have historically been underserved through traditional degree programs. And certificate-earners do look somewhat different than degree-earning students: they are older, more likely to be low-income, and less likely to be white (Carnevale, Rose, and Hanson, 2012). However, some studies raise concerns that Black students may experience somewhat lower returns to short-term credentials than their white and Hispanic peers (e.g., Bahr, 2016; Carnevale, Rose, and Hanson, 2012).

Research indicates that short-term credentials are associated with improved employment outcomes for the individuals who earn them. In their review of research across several states, Belfield and Bailey (2017) found that the average gains in earnings for a certificate ranged from $4,640 to $7,190 depending on the state and the gender of the individual earning the credential. However, some of the evidence suggests that the benefits of short-term credentials fade over time (Belfield and Bailey, 2017; Minaya and Scott-Clayton, 2022). Carnevale et al. (2012) estimated that the lifetime returns to a postsecondary certificate are $240,000 more in earnings relative to a high school degree only. While studies consistently demonstrate that individuals

experience higher earnings from degrees relative to certificates or "some college, no degree" (Belfield and Bailey, 2017; Carnevale, Rose, and Cheah, 2011), these short-term credentials can provide improved job opportunities for those who face constraints on their ability to pursue a college degree in the short run.

The returns to short-term credentials vary widely across programs. Individuals who earn health care credentials have demonstrated the largest earnings gains in research across many states (Belfield and Bailey, 2017; Minaya and Scott-Clayton, 2022; Stevens, Kurlaender, and Grosz, 2019). The length of the credential program is also related to earnings: certificate programs that last at least one year or longer tend to produce larger and more consistent earnings gains than certificates that require less than one year of coursework (Belfield and Bailey, 2017). When individuals continue with their education (or "stack credentials") and earn an associate's degree, they see somewhat larger returns (Bohn and McConville, 2018; Daugherty et al., 2023; Meyer, Bird, and Castleman, 2022).

The Role of State Funding for Short-Term Credentials

As noted above, states across the U.S. have begun to invest more heavily in short-term credentials by funding individuals pursuing these programs and postsecondary institutions offering these programs. Many short-term programs do not qualify for financial aid, and state funding models have largely emphasized degree completion, so these more recent investments can help to fill some of the gaps. As of 2022, the most common approach states were taking to funding short-term credentials was direct financial aid to students (accounting for 27 of 59 state-level initiatives), followed by institutional grants that aim to fund tuition and/or enhanced student supports (14 of 59 state-level initiatives) (Murphy, 2023). A smaller number of initiatives provided funding to institutions through grants for short-term program development and/or integration into state funding formulas for postsecondary institutions.

The research has demonstrated that financial aid for individuals pursuing postsecondary education can play a critical role in expanding access to college and increasing educational attainment, particularly for low-income students. In addition to paying tuition and fees and other college-going expenses, many individuals reduce work hours to attend college. State and federal financial aid can help to cover some of these costs and reduce the barriers to college enrollment and completion, particularly for low-income individuals who are most likely to face constrained resources. Research evidence suggests that each additional $1,000 in grant aid awarded increases degree attainment by approximately 1.5 to 2 percentage points (Nguyen, Kramer, and Evans, 2019).

The design and implementation of state financial aid programs can vary across several dimensions. For example, states have established different maximum amounts for their financial aid awards and the number of awards an individual can receive. In the national scan of state financial aid programs for short-term credentials, the size of these awards ranged from $750 to

$3,816 (Murphy, 2023). And while there have not been impact studies of financial aid for short-term credentials, the broader literature suggests that larger grants tend to produce larger impacts for the individuals who receive them than smaller grants (Bettinger et al., 2019; Dynarski, 2003; Swanson et al., 2016). Financial aid programs also vary in terms of which costs they can be used to cover. Some programs restrict grants to cover tuition and fees only, while others allow students to cover a broader range of costs associated with college-going (e.g., supplies, living expenses).

States can also place restrictions around which individuals are eligible for financial aid according to individual characteristics (e.g., income, age) and the type of program the individual is pursuing. For example, the national scan of short-term financial aid programs found that 14 states restricted grants to individuals based on income, economic disadvantage, or other equity-focused criteria (Murphy, 2023). The broader financial aid literature suggests that targeting financial aid to lower-income students can be a cost-effective approach to increasing college enrollment (Anderson, 2020; Nguyen, Kramer, and Evans, 2019). States have also established restrictions around financial aid eligibility based on age, prior educational achievement, and residence in a particular geographic region. In terms of program eligibility, Murphy (2023) found that more than half of the initiatives in the national scan of state funding programs for short-term credentials limited the awards to programs based on the value they offered, though many of the state policies did not explicitly define value. Targeting financial aid to programs with higher workforce demand, higher wages, or both factors may help to improve the likelihood that individuals and the state benefit from the investment.

The application processes that individuals or colleges must undertake to access state financial aid can also vary. For example, when states set student or program eligibility requirements, they typically require some sort of verification process for determining that the award is being applied in ways that meet those eligibility requirements. In addition, states may require that colleges track other types of information on the recipients of funding. The administrative burden generated by these application and tracking requirements may reduce the likelihood that individuals and colleges access the funding, but may also help states to assess whether the financial aid is being used as intended and is helping to improve student outcomes.

Colorado's Context and SB 22-192

In Colorado, 13 of the state's 19 community, technical, and local district colleges fall under CCCS. The system office administers programs across colleges, coordinates policy and practice, and provides colleges with funding. CDHE also plays a critical role in establishing policy for the state's public institutions, advocating for and providing funding, and coordinating initiatives. Community colleges vary in terms of size, location, and funding structure.

The Colorado legislature, CDHE, and CCCS have been active in pursuing legislation to push forward critical postsecondary education and training initiatives. Since 2014, the state has

published the Colorado Talent Pipeline Report, which describes employment trends and strategies for balancing labor supply and demand (Colorado Workforce Development Council, 2023). More recently, the state has funded the cost of tuition, fees, and course materials for eligible students in certain certificate and associate's degree programs through the Care Forward Colorado program (Colorado General Assembly, 2022b) and Career Advance Colorado program (Colorado General Assembly, 2023). The state has also taken steps to expand apprenticeships (Colorado Department of Labor and Employment), evaluate the quality of nondegree credentials (Colorado General Assembly, 2024), and improve collection of education and workforce data (Colorado General Assembly, 2022a).

Colorado established SB 22-192 (Colorado General Assembly, 2022c) to expand access to short-term, stackable credential opportunities across the state. The legislation appropriated pandemic relief funding to CDHE for several purposes. First, the legislation called on CDHE to delineate clear stackable credential pathways in five critical workforce areas. Using the Colorado Talent Pipeline Report, CDHE's Stackable Credential Pathways Steering Committee identified behavioral health, cybersecurity, education, health care, and software development as growing industries for building stackable credential pathways and described two pathways within each industry. Second, the legislation required CDHE to convene stakeholders to develop a framework for defining "credentials of value" according to four signals of quality: strong industry and economic demand for the credential, a clear description of the skills and competencies learned while earning the credential, sufficiently high wages among individuals earning the credential, and stackability of the credentials. Finally, SB 22-192 called on CDHE to provide financial support to individuals enrolling in these short-term, stackable programs. To achieve this aim, CDHE allocated $1.4 million of the $1.8 million appropriated to support students as they pursue short-term credentials to CCCS to distribute across its community colleges and students.

SB 22-192 and subsequent guidance from CDHE and CCCS provided a few restrictions around how colleges could distribute funding for short-term credentials, while also providing colleges with considerable flexibility to distribute the funding in different ways (Table 2.1). Features of the program that were set at the state level included the types of credentials and career fields that were eligible for funding, the eligibility criteria for students, and the basic requirements for determining eligibility. SB 22-192 defined a nondegree credential as a postsecondary certificate, apprenticeship certificate, professional license, or industry certification and required nondegree credentials to be part of a stackable credential pathway. Credentials could be credit-bearing or non-credit-bearing. In addition to specifying the type of nondegree credentials that were eligible for funding, SB 22-192 required colleges to prioritize nondegree credential programs that were associated with industries in the Colorado Talent Pipeline Report. To help colleges operationalize this requirement, CDHE clarified that funding should, where possible, align with five industry areas: behavioral health, cybersecurity, software programming or development, education, and health care.

Funding could be awarded to students who were pursuing a nondegree credential in spring, summer, or fall of 2023 and whose accounts had charges before June 30, 2023, the deadline to spend the funding. To receive funding, students were required to sign an attestation that they had experienced one or more kinds of economic loss specified on a list because of the COVID-19 pandemic or another form of economic loss. The attestation was required for compliance with federal COVID-19 relief funding requirements. Colleges were required to collect the attestation of economic loss once for SB 22-192 funding but not required to send the attestation to CCCS, and guidance from CCCS did not state whether or how colleges were required to verify the attestation. SB 22-192 did not restrict the amount of funding that colleges could distribute to each student or the ways that funding could be used. Guidance from CCCS stated that funding could be used to cover tuition and fees, books and supplies, certification and licensing exams, and transportation.

Table 2.1. State Restrictions and Guidance on Use of SB 22-192 Funds

Funding Distribution Determination	State Guidance
Program Eligibility	• Nondegree credential: Certificate, apprenticeship certificate, professional license, or industry certification • Stackable, identified in Colorado Talent Pipeline Report, and addresses critical job shortage • Where possible, aligned with behavioral health, cybersecurity, software programming or developer, education, or health care
Student Eligibility	• Low-income (attestation of economic loss) • Enrolled spring, summer, or fall with charges before June 30, 2023
Award Amount	• No restrictions
How Funding Could Be Used	• Tuition and fees • Certification and licensing exams • Books, supplies, and other expenses (e.g., transportation)
Application Process	• Limited guidance on how attestation of economic loss was to be verified • No other application requirements for student or institution

SOURCE: Policy documents and RAND interviews with system and college staff.

Colleges had a limited amount of time to distribute the funding. SB 22-192 was signed into law in May 2022, and the Colorado Commission on Higher Education approved a policy for distributing the funding in July 2022. CCCS received the ability to spend the funding and sent initial guidance to the 13 colleges in the system in March 2023. Six colleges submitted applications and were awarded funding in April and May of 2023. Given that the legislation required colleges to distribute the funding to individuals by June 30, 2023, colleges had less than three months to distribute the funding to students.

Chapter 3. Our Approach to Assessing the Program

Aims

To assess how the funding from SB22-192 was distributed and to inform future state investments in short-term credentials, CCCS and RAND decided to leverage available program data to address three research aims:

1. describe variation in how colleges distributed funding from SB 22-192
2. describe the students who received funding
3. examine outcomes for students who received funding.

Below we describe the data sources and approaches we used to build this evidence.

Data Sources

We drew on three different data sources for our analysis: (1) documentation on the policy and how colleges implemented the program; (2) interviews with CCCS leadership and college staff administering the funding; and (3) student-level administrative data. Our document review included state policy documents such as SB 22-192 legislation and subsequent policy guidance, related legislation and state reports, and narrative reports on implementation from each college. The state legislation and policy documents provided details on the initiative and context around the implementation of the funding. The implementation reports from each of the six community colleges provided key details on how the funding was distributed at the institution, such as the ways that funding was awarded and used, challenges with distributing the funding, and ideas to improve future funding programs.

To supplement the information provided in the legislation and policy documents on the context from SB 22-192, we conducted an initial background interview with officials from CCCS. To expand on the information provided by the six community colleges in their implementation reports, we conducted one semi-structured interview with staff responsible for implementing the program at each college. Interviews captured information on how each college implemented their financial aid awards, perceived impacts, barriers and facilitators to implementation, lessons learned, and recommendations from college staff. The interviews were automatically transcribed, uploaded to qualitative analysis software, and coded using a predetermined set of codes.

Finally, we drew on student-level administrative records to describe the recipients of funding and their outcomes. CCCS asked each of the six colleges that were awarded funding to collect data on the recipients of funding according to a template that the system provided. These data included demographics, field of study, credential type for noncredit training, award amount, and

whether the student completed their program or training. To supplement the data collected by colleges, CCCS provided some additional data fields for students in credit-bearing programs, including details on program of study, continued enrollment through spring 2024, and completion of credentials through fall 2023. The final data included 844 unique students receiving 853 awards (some students received more than one award). We did not have any administrative data on students who did not receive funding (i.e., potential comparison students).

Analytic Approach

We conducted descriptive analysis of our data to assess how funds were distributed, who was served, and student outcomes. We examined how the six colleges distributed the funding according to a predetermined framework that was informed by the broader financial aid literature and our understanding of the key features of financial aid programs that may shape effectiveness and costs. These five features were as follows:

1. program eligibility (type of credentials and the career fields eligible for funding)
2. student eligibility (e.g., students with financial need or ability to succeed in program)
3. award amount and number of awards per recipient
4. how awards could be used (e.g., tuition and fees, books and supplies, other education-related expenses)
5. application requirements (e.g., documentation required to verify financial need).

To assess outcomes, we conducted descriptive analysis of student-level data on enrollment in college and completion of credentials. Colleges separately tracked and reported outcomes data for noncredit students because CCCS does not currently collect longitudinal data on noncredit students. Colleges continued to track completion outcomes for these students through fall 2023. Funding recipients who were enrolled in credit-bearing programs could be followed in CCCS's longitudinal administrative data system, allowing us to track enrollment outcomes through spring 2024 and completion outcomes through fall 2023 across all colleges. However, completion outcomes did not include completion of credentials outside CCCS. Colleges were asked to collect employment outcomes in the template, but these outcomes were missing for most students, so we exclude them from our analysis. In addition to our analysis of administrative data, we asked college staff to report on their perceptions regarding the impacts the funding may have had on students.

Finally, we conducted a notional cost-benefit analysis to provide an example of how the state might go about estimating the return on investment for the program. To conduct this analysis, we relied on our program data on costs and the number of participants, along with some assumptions about program impacts and returns to credentials based on estimates from the literature.

Study Limitations

Our primary study limitation was our lack of data on comparable individuals who did not receive funding for short-term credentials, which prevented us from estimating the impacts of the program. Even if we had data on non-recipients, it is unclear that the funding was distributed in a way that would have allowed us to identify comparison students and estimate the impact of the funding. We also had a limited view of the program outcomes given the lack of employment data and a short timeframe for the study, which prevented us from interviewing the individuals who received funding from the program.

Chapter 4. Findings on Program Implementation and Outcomes

Distribution of Funding by Colleges

As noted in Chapter 2, SB 22-192 and related policy guidance allowed considerable flexibility for colleges to direct financial support. The funding had to be used for individuals pursuing a program that awarded short-term credentials in high-priority fields established by the legislation. However, colleges could choose whether to target the funding narrowly to support one or two programs, or whether the awards would remain broadly available across fields. The state required that colleges collect attestation of economic need but provided flexibility to colleges on what the attestation process consisted of, and whether colleges wanted to establish eligibility requirements beyond that. Colleges could choose the award amounts, the number of awards per grantee, and how the funds could be used (i.e., tuition and fees only versus other expenses).

Based on interviews with staff administering the program, implementation reports, and program data, we found that colleges differed across some features of their programs and were similar in other areas. Below we describe how the colleges approached different decisions about how to use SB 22-192 funding.

Program Eligibility

As noted above, the state provided specific guidance on aligning the use of funding with particular programs. The aim was to fund programs leading to short-term (nondegree) credentials. Legislation called for alignment with the Colorado Talent Pipeline Report and critical job needs, and institutions were also encouraged to align with the stackable credential pathways being developed under SB 22-192. Beyond these general guidelines, colleges had the flexibility to maintain broad eligibility or target the funding to specific fields.

Some colleges prioritized specific programs or career fields when they distributed funding, while others maintained somewhat broader eligibility criteria. The first column of Table 4.1 describes the fields that colleges prioritized. For example, Arapahoe Community College and Front Range Community College targeted funding to students pursuing software development bootcamps at their institutions. Pueblo Community College and Red Rocks Community College prioritized training in construction and skilled trades. In contrast, Trinidad State College distributed funding to students across all industries identified by SB 22-192 without targeting specific programs or trainings. Lamar Community College also funded students across industries although it established the licensed practical nurse (LPN) and nail technician programs as second and third-tier priorities after outstanding balances for students in industries identified by SB 22-192 had been paid.

Table 4.1. College Decisions about Program Eligibility and Evidence on Recipient Programs

College	Program Eligibility	Career Field[a]	Levels of Credentials[b]
Arapahoe Community College	• Health care (targeted) • Software development bootcamp (targeted)	• 68% of recipients in Health Science, Criminal Justice & Public Safety • 32% of recipients in Engineering, Technology & Media Arts	• Health Science, Criminal Justice & Public Safety recipients were all credit-bearing certificate programs • Software bootcamp was noncredit, led to certificate
Front Range Community College	• Software development bootcamp (targeted)	• 100% of recipients in Engineering, Technology & Media Arts	• Software bootcamp was noncredit, led to certificate
Lamar Community College	• Tier 1: Industries listed in legislation (broad) • Tier 2: LPN (targeted) • Tier 3: Nail technician (targeted)	• 54% of recipients in Health Science, Criminal Justice & Public Safety • 38% in Hospitality & Human Services Education • 8% in Business & Marketing	• 62% of recipients in a program ending with an associates degree • 38% in a credit program ending with a certificate
Pueblo Community College	• Tier 1: Skilled trades with industry-recognized credentials (broad) • Tier 2: Training needed by specific employers with skills gaps (broad) • Tier 3: Certificate = that stack to degrees (broad)	• 59% of recipients in Health Science, Criminal Justice & Public Safety • 24% of recipients in Skilled Trades & Technical Sciences • Remaining 17% spread across other fields	• 67% of recipients in programs ending with associates degree • 20% in credit programs ending in a certificate • 9% in noncredit programs ending in an industry credential • 4% in noncredit programs ending in a certificate
Red Rocks Community College	• Construction trades (targeted)	• Recipients primarily split across three fields: Business & Marketing (31%), Health Science, Criminal Justice & Public Safety (34%), and Skilled Trades & Technical Sciences (28%) • A small number of recipients in each other area	• Recipients across all credential types, but few recipients in programs leading to degrees • 96% of Business & Marketing recipients were pursuing noncredit certificates • 90% of Health Science, Criminal Justice & Public Safety recipients were pursuing short for-credit certificates or noncredit certificates • 92% of Skilled Trades & Technical Sciences recipients were pursuing a license or certification
Trinidad State College	• Industries listed in legislation (broad)	• Most recipients in Health Science, Criminal Justice & Public Safety (91%) • Others were in Hospitality, Human Services & Education (9%)	• All recipients were in credit programs • 73% of programs recipients were in led to degrees

SOURCE: Program eligibility information is drawn from implementation narrative documents and RAND interviews with college staff. Career cluster and credential level data are drawn from analysis of data on funding recipients.
[a] Career fields defined by the Colorado Career Cluster Model. Data exclude recipients whose career field was unknown.
[b] Data exclude recipients whose credential type was unknown or undeclared.

These decisions about how to target funding across programs had implications for which career fields were represented among recipients of funding, and which credentials the programs were leading to. The second column of Table 4.1 describes career fields of recipients as defined by Colorado's Career Cluster Model (Colorado Department of Education, 2023). Given that Arapahoe Community College and Front Range Community College had prioritized funding for software development bootcamps, we saw large proportions of their recipients in the Engineering, Technology & Media Arts career field. These software bootcamps led to noncredit certificates at both colleges. Arapahoe Community College also prioritized health care fields, and we found a substantial portion of recipients in credit-bearing certificate programs in the Health Science, Criminal Justice & Public Safety career field. Pueblo Community College and Red Rocks Community College prioritized funding for construction and industry-recognized credentials, and these colleges had a higher percentage of recipients in the Skilled Trades & Technical Sciences career field than other colleges. However, Pueblo Community College's recipients were primarily in health care programs, and Red Rocks Community College's recipients were also commonly found in the Health Science, Criminal Justice & Public Safety and Business & Marketing fields. Lamar Community College and Trinidad State College both tended toward broader eligibility across programs and saw the highest number of recipients in the Health Science, Criminal Justice & Public Safety and Hospitality, Human Services & Education fields. These fields are prioritized in SB 22-192 legislation and represent high-demand fields across the state.

Colleges considered different factors when prioritizing programs. First, they prioritized programs that faced gaps left by other funding sources. Several colleges had already received pandemic relief funding for health care or early childhood education programs. These colleges did not see value in layering on additional funding through SB 22-192, and instead utilized the funding for programs where financial aid was unavailable. In contrast, one college had exhausted its pandemic relief funding for health care programs and used SB 22-192 funding to support the next cohort of health care students.

Second, most colleges considered labor market outcomes and employment opportunities associated with programs in determining which programs were eligible. For example, colleges that prioritized funding for software development and construction programs cited strong demand for these fields. Pueblo Community College prioritized industry-recognized credentials because these certificates would allow students to "get their foot in the door" of employers that provide additional training or apprenticeships after students are hired.

Third, the programs that colleges prioritized also reflected the options that already existed on their campuses or that could be readily expanded. For example, Red Rocks Community College prioritized SB 22-192 funding for the construction certificate in its prison education program because the program had infrastructure in place and could easily be expanded to reach new students in prisons.

Finally, Front Range Community College used the funding to pilot a new partnership with a third-party bootcamp that would provide up-to-date software development training.

Student Eligibility

All colleges were required to collect an attestation of economic loss from students receiving funding. Students were required to attest that they had experienced one or more kinds of economic loss specified on a list because of the COVID-19 pandemic or another form of economic loss. Examples of an economic loss included experiencing unemployment, being formerly incarcerated, and being eligible for a federal Pell Grant, and receiving public benefits for childcare, food, and other living costs. SB 22-192 did not require that students were below an income threshold to be eligible for funding. Beyond this, the state and system did not set any additional requirements.

Some colleges had additional eligibility criteria for their programs. At Arapahoe Community College and Front Range Community College, students who applied for bootcamps were screened for ability to succeed in the programs. The screenings were administered by the bootcamp providers with which the colleges had partnered. Front Range Community College also required that students pay $500 of the $10,000 bootcamp tuition to ensure that students had a stake in the program and to encourage completion. Trinidad State College used a manual process to identify the expenses of students and the funding available to students from multiple types of financial aid and channel students to SB 22-192 funding or another financial aid source to maximize the amount of aid that each student received. Thus, Trinidad State College restricted eligibility for SB 22-192 funding based on eligibility for other grants. Lamar Community College awarded funding left over after distributing funding to students in Tier 1 and 2 programs to nail technician students based on financial need since the leftover funding was not sufficient to provide kits for all students. Pueblo Community College and Red Rocks Community College targeted programs serving incarcerated individuals, viewing this as a way to advance equity by targeting a disadvantaged population.

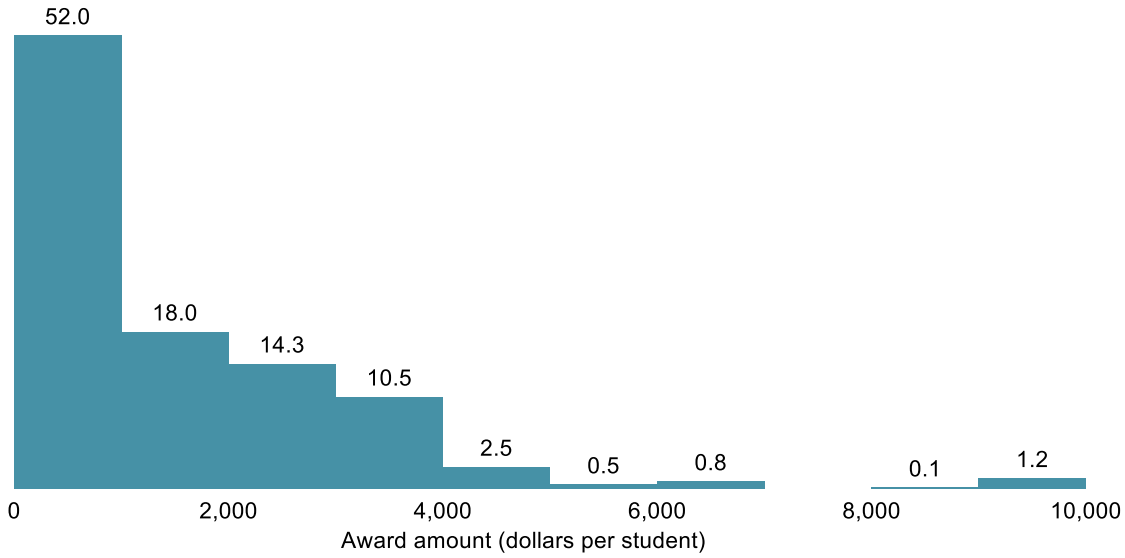
Award Amount and Number of Awards

The state did not set any restrictions on the size of the awards or the number of awards an individual could receive. Most awards provided by SB 22-192 were for relatively small dollar amounts (Figure 4.1). Approximately half of recipients (52 percent) received an award of less than $1,000. These are comparable to national findings, which indicated that short-term financial aid award amounts for state initiatives averaged $750 to $3,816.

Colleges' decisions about program eligibility were related to award amounts. Figure 4.2 shows the percentage of students with small (below $1,000), medium (from $1,000 to $3,000), and large (greater than $3,000) awards. Arapahoe Community College and Front Range Community College, which prioritized software bootcamps, distributed a large number of high-dollar awards. These colleges awarded $9,500 and $3,999 per student, respectively, in their

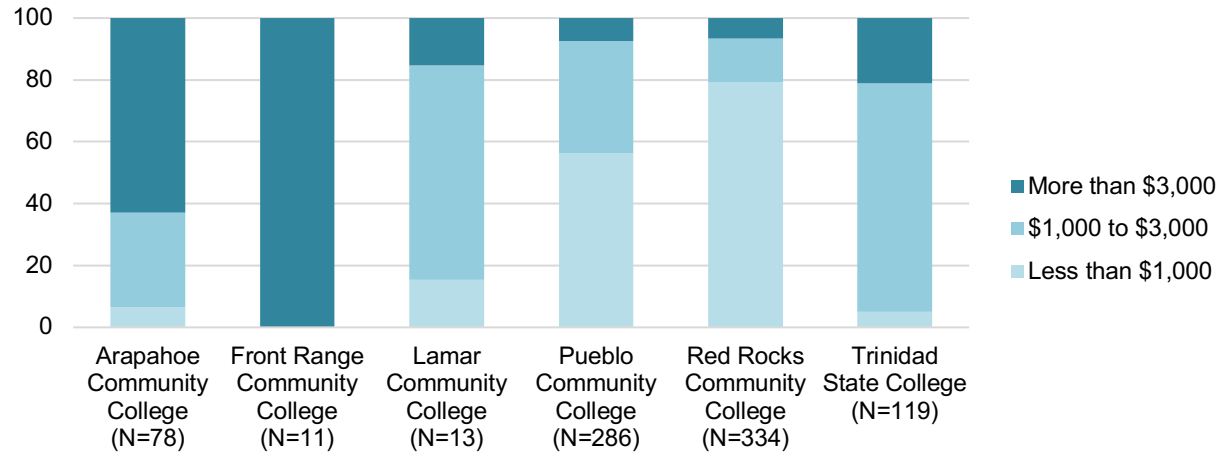
software development bootcamps. In contrast, Red Rocks Community College Community College distributed a large number of low-dollar awards. It awarded $301 per student for construction certificates and other noncredit certificates. Other colleges fell between these extremes. At Lamar Community College and Trinidad State College, most recipients received between $1,000 and $3,000.

Figure 4.1. Percentage of Award Recipients by Award Amount



Source: RAND analysis of CCCS data.

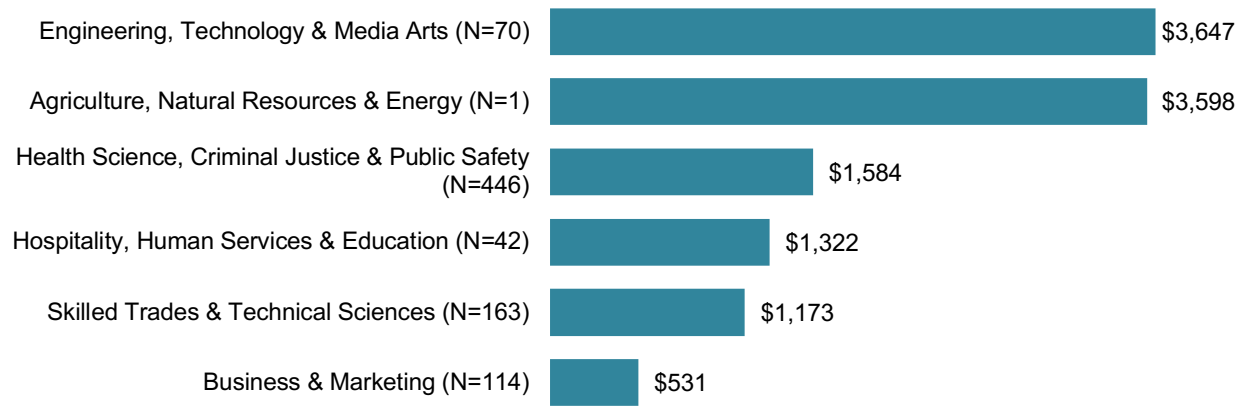
Figure 4.2. Percentage of Award Recipients by Award Amount at Each College



Source: RAND analysis of CCCS data.

Differences in award amounts also varied across fields (Figure 4.3). The grants to individuals in Engineering, Technology & Media Arts (largely bootcamp participants) and individuals in Agriculture, National Resources & Energy were more than double the size of awards to those in Health Science, Criminal Justice & Public Safety programs and other types of programs. This reflected the decisions of colleges with software bootcamps to cover full tuition for a small number of students enrolling in relatively expensive programs, while others distributed smaller grants to a larger number of individuals across fields.

Figure 4.3. Average Award Amount by Career Field



Source: RAND analysis of CCCS data.

How Awards Could be Used

The state did not provide any restrictions around the use of funds to cover program-related costs beyond tuition and fees. While three colleges focused on covering tuition and fees, three of the colleges used funding for other costs, such as exam and materials costs. Some colleges focused on covering unpaid balances and reported these balances as an important barrier that prohibited students from registering for classes and making progress in their pathways. At Trinidad State College, if a student did not have an outstanding balance, the award amount was issued to them as a refund that they could spend at their discretion. Trinidad State College staff believed that this funding was important for helping students cover education-related costs such as internet, childcare, transportation, and meals away from home, which were challenges for students in their region. In terms of costs beyond tuition and unpaid balances, Lamar Community College distributed stipends to LPN students to help cover travel costs and clinical fees. They also paid for expensive kits needed by students in the nail technician program. Pueblo Community College, which prioritized industry-recognized credentials, cited the high cost of testing and licensing needed to enter certain health care, business, and technology fields as reason a reason that the college funded testing and licensing fees.

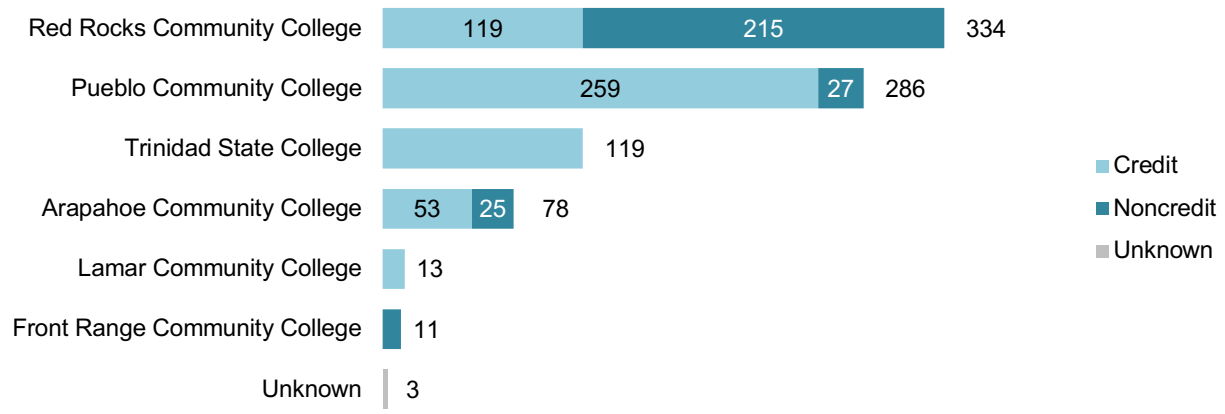
Application Requirements

Colleges contacted students to inform them about the opportunity to receive SB 22-192 funding and the need to complete an attestation. The attestation was separate from any other state financial aid process (e.g., the Free Application for Federal Student Aid) and consisted of one form that students needed to complete. Colleges used a combination of email messages and notifications on a website or learning management system to notify eligible students about the funding opportunity. At Arapahoe Community College and Front Range Community College, bootcamp providers advertised the opportunity using social media. Several colleges worked with program leaders or instructors to notify students, although some said that they lacked time to fully engage program leaders and instructors due to the short timeframe for distributing funding. Several colleges described using an electronic form to collect the attestation, and several described following up with eligible students by phone call or chat message if they did not respond to initial outreach. One college required students to provide documentation, such as a Medicaid card, to verify their attestation. The requirement created a challenge for distributing funding and required staff to follow up with students, although staff said that they were able to collect all the documentation. Staff at most colleges said that the short timeframe for distributing funding created challenges with reaching out to students and collecting attestations.

Characteristics of Award Recipients

Across all colleges, 844 students received an award. Figure 4.4 shows the distribution of recipients in credit-bearing programs and noncredit training across colleges. Seventy-four percent of all recipients were from two colleges and 77 percent of recipients in noncredit programs were from one college.

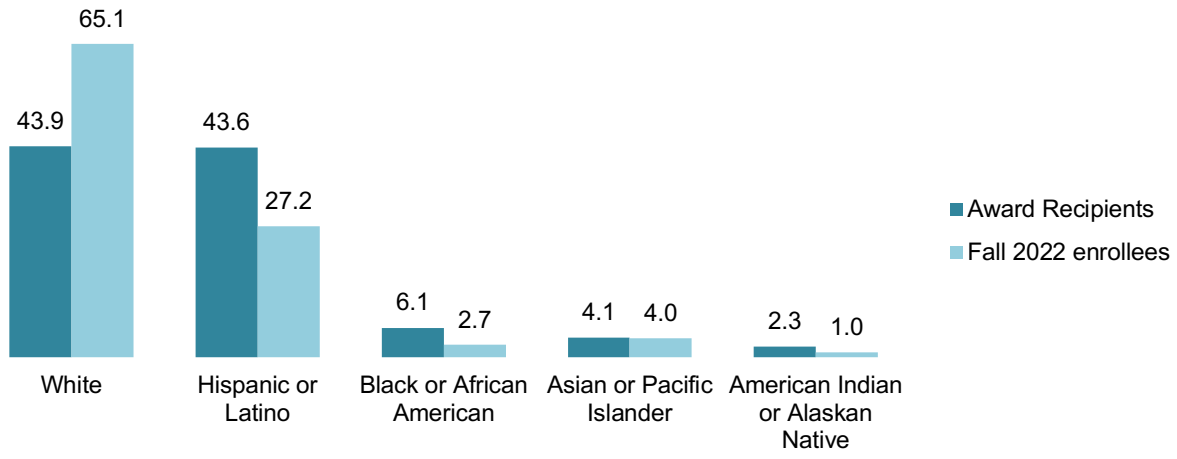
Figure 4.4. Number of Award Recipients by College



Source: RAND analysis of CCCS data.

We compared the gender and race/ethnicity of award recipients with those of all fall 2022 enrollees across the six colleges as reported by the Integrated Postsecondary Education Data System, or IPEDS (IPEDS, undated). Among award recipients, 58.7 percent were female and 39.8 percent were male. This largely reflect the overall student population across the colleges, which was 56.0 percent female and 44.0 percent male. Figure 4.5 shows the percentage of award recipients by race/ethnicity.[1] The percentage of award recipients who were categorized as Hispanic or Latino (43.6 percent) was higher than the proportion of all enrollees who were Hispanic or Latino (27.2 percent), and the percentage of award recipients who were categorized as white (43.9 percent) was lower than the total proportion of all enrollees that were white (65.1 percent). The percentage of award recipients in other race/ethnicity groups largely reflected total enrollees. Students who enroll in short-term credential programs tend to be older and less likely to be white (Carnevale, Rose, and Hanson, 2012), so we anticipated some differences from IPEDS data on the overall population of enrollees.

Figure 4.5. Percentage of Award Recipients by Race/Ethnicity



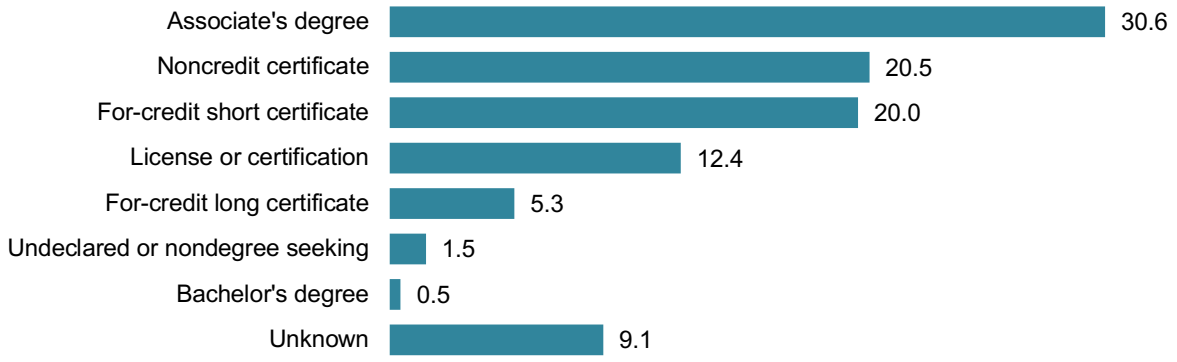
Source: RAND analysis of CCCS and IPEDS data.

Award recipients were pursuing a variety of different credentials. Figure 4.6 shows the types of credentials that recipients were earning. Students who were pursuing a certificate comprised 45.9 percent of recipients. This group included 20.5 percent of recipients who were pursuing a noncredit certificate, 20.0 percent who were pursuing a short for-credit certificate, and 5.3 percent who were pursuing a long for-credit certificate. An additional 12.4 percent were pursuing a license or certification. Thirty-one percent of recipients were pursuing an associate's degree.

[1] These data are not directly comparable to race/ethnicity from IPEDS because IPEDS reports some race/ethnicity categories not reported in the SB 22-192 data. To increase comparability, we exclude students with unknown race/ethnicity from both datasets, and we exclude students with race/ethnicity of two or more races and U.S. nonresident from the IPEDS dataset.

We cannot tell from the data whether these students designated as associate's degree students were earning short-term credentials that were embedded in a degree program. Data on student credential type often reports on the highest level sought within the institution and cannot be used to separately identify all short-term credential participants.

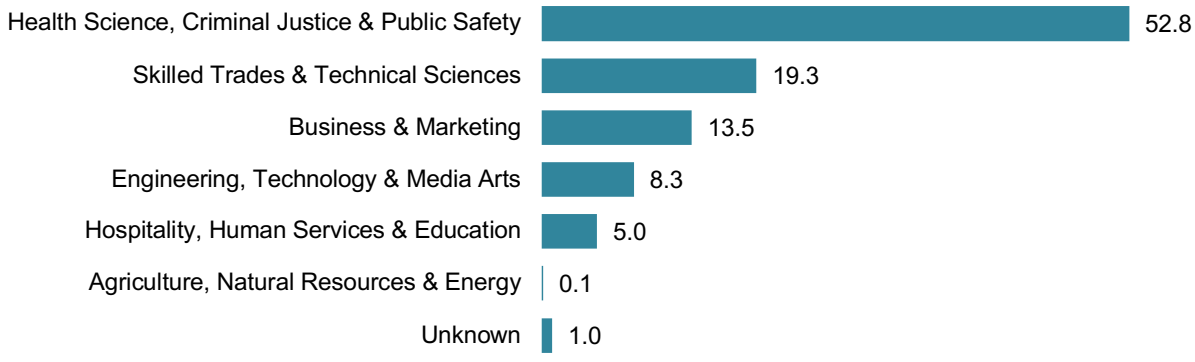
Figure 4.6. Percentage of Award Recipients by Type of Credential



Source: RAND analysis of CCCS data.

More than half of award recipients were pursuing a credential in the health care field. Figure 4.7 shows the percentage of total recipients by career field. Fifty-three percent of recipients were pursing a credential in Health Science, Criminal Justice & Public Safety and 19.3 percent were pursuing a credential in Skilled Trades & Technical Sciences. This reflects decisions by colleges with the most recipients to prioritize construction and skilled trades, or to prioritize the fields prioritized in SB 22-192, which included health care and education.

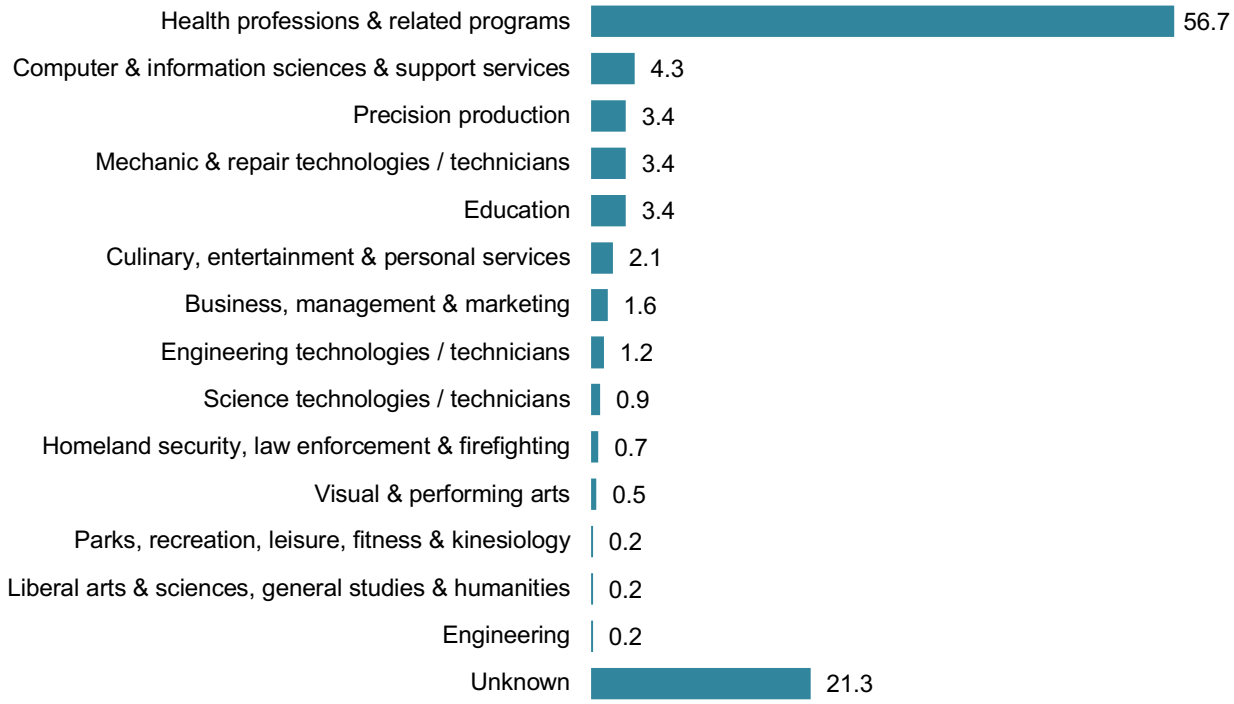
Figure 4.7. Percentage of Award Recipients by Career Field



Source: RAND analysis of CCCS data.

Figure 4.8 shows the percentage of recipients in credit-bearing programs by Classification of Instructional Programs code, which provides more detail on career field than categories in the Career Cluster Model. Fifty-seven percent of recipients in credit-bearing programs were earning a credential in the health professions and related programs family.

Figure 4.8. Percentage of Award Recipients in Credit-Bearing Programs by Classification of Instructional Programs Code

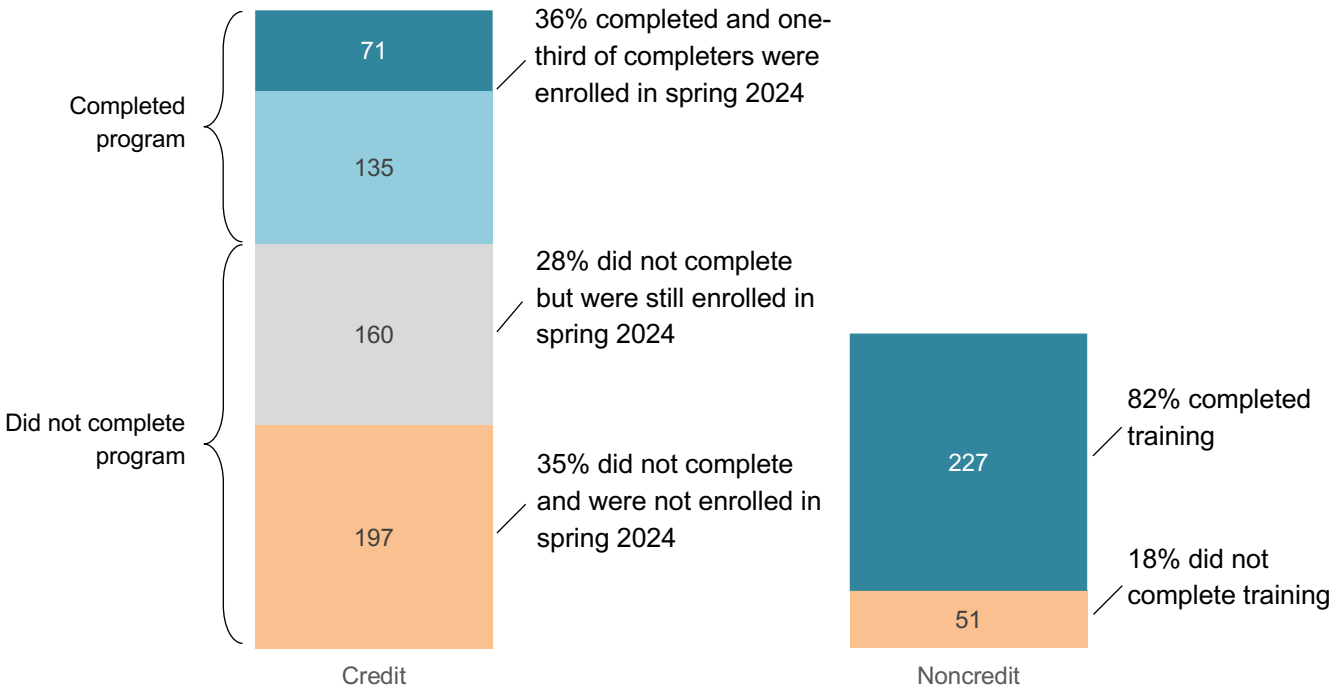


Source: RAND analysis of CCCS data.

Participant Outcomes

Most award recipients had completed their program by fall 2023 or were still enrolled in a program in spring 2024 (Figure 4.9). We were able to follow recipients in credit-bearing programs in CCCS data to assess whether they were still enrolled at their colleges beyond the June 30, 2023 deadline. Among recipients enrolled in credit-bearing programs, 36 percent had completed their program as of fall 2023. An additional 28 percent of recipients had not completed their program but were still enrolled. This may include students who were pursuing longer credentials, such as a long certificate, associate's degree, or bachelor's degree. Among noncredit recipients, 82 percent completed their program. The higher rate of completion among these students may reflect the shorter length of noncredit trainings relative to credit degree and certificate programs.

Figure 4.9. Number of Award Recipients by Program or Training Completion



Source: RAND analysis of CCCS data.

Chapter 5. Potential Impacts and Costs

Challenges with Estimating Impacts

Policymakers need information about the potential impact of funding for short-term credentials to help design and allocate funding to future financial aid programs. The impact of an award is the change in outcomes—such as credential completion, employment, and earnings—that was caused by the award. Impact can be conceptualized as the difference between the outcomes that award recipients experienced and the outcomes they would have experienced had they not received an award.

As described in Chapter 4, approximately half of award recipients completed a credential, and many were still enrolled. However, many of these individuals might have completed credentials even if they had not received an award. Because data on comparable individuals who did not receive an award was not available for this study, we were unable to estimate the impact of awards on completion. Moreover, because data on employment outcomes were almost entirely unavailable, we were unable to analyze employment outcomes descriptively or estimate the impact of awards on employment or earnings.

To provide CCCS and other stakeholders with some insights on the impact of SB 22-192, this chapter presents two analyses. First, we report on the perceived benefits of awards that college staff described in interviews. Second, we present a notional cost-benefit analysis that uses evidence from the broader literature on financial aid and the value of credentials to illustrate how the program might have improved credential completion and earnings outcomes and provided a return on investment.

Perceived Benefits

College staff overseeing SB 22-192 funding reported that the funding allowed colleges to fill gaps left by other grants or financial aid programs. They noted that students in short-term credential programs were often ineligible for federal financial aid as well as nonfederal grants and scholarships with more eligibility criteria than SB 22-192 funding. The absence of restrictive eligibility criteria at the statewide level allowed colleges to award funding to students who were ineligible for other financial aid. For example, one college awarded grants to a small number of noncitizen students whom staff believed would not otherwise have received funding. Staff said that the funding was especially important for students in noncredit training since fewer resources are generally available for noncredit programs than credit-bearing programs.

Staff at most colleges emphasized that flexibility with how students could use SB 22-192 funding helped students complete their programs or become job ready. Staff said that use of funding to cover unpaid balances prevented stop-outs and helped students continue in their

pathways without interruption, and that use of funding to cover certification and licensing exams helped students test and become licensed more quickly. Staff at one college emphasized that use of funding to reduce tuition and fees or provide refunds helped recipients cover the costs of internet, childcare, transportation, and meals away from home. These barriers to education were especially acute in the college's service area, which was geographically large and had long commute times. However, some staff believed the funding's impact was low because they were able to award funding only at the end of students' programs or after students had completed their programs. They believed that the funding would have been more impactful if they had been able to award it earlier.

Staff from two colleges reported that SB 22-192 funding allowed them to substantially expand an existing program or launch a new program that provided training to individuals who would not otherwise have received it. Red Rocks Community College described how the funding allowed one college to expand its existing prison education program by capitalizing on its existing infrastructure and relationships with prison staff. College staff believe that the program helps to reduce behavior problems, improves safety, and increases interest in education and community college enrolment after participants leave prison. Front Range Community College described how the funding allowed the college to launch a partnership with a software development bootcamp, providing up-to-date and expensive training at an accessible price. Staff at both colleges suggested that participants in these programs would have been unlikely to have access to the training in the absence of SB 22-192 funding.

Cost-Benefit Analysis with Assumptions Regarding Impact

Using student administrative data and evidence from the broader literature on financial aid impacts and credential value, we conducted a notional cost-benefit analysis to show how the state might estimate return on investment for the program. Table 5.1 documents our steps and assumptions. Below, we explain each step in the analysis and the assumptions we use.

In Rows 1 through 5, we estimate the award program's total cost. With an average award amount of $1,519 and 844 award recipients, the total cost of awards was approximately $1.3 million. (This is less than the $1.4 million allocated to CCCS because one college did not spend its entire funding allocation.) We assume an administrative cost equal to 10 percent of the total award cost based on the 5 percent cap on administrative costs set for institutions participating in federal loan programs and the assumption of an additional 5 percent in administrative costs at the state or system level. With these assumptions, the total cost of the award program was approximately $1.4 million.

In Rows 6 and 7, we borrow estimates from the financial aid literature, making the (strong) assumption that SB 22-192 is as effective as the average financial aid program studied rigorously through impact research. A meta-analysis found that postsecondary grant recipients have a 1.8 percentage point higher graduation rate than comparable non-recipients (LaSota et al., 2024).

Based on this evidence, we assume that receiving an SB 22-192 award directly resulted in 1.8 percent of recipients, or 15 recipients, completing their programs. In row 8 we calculate the cost per completion by dividing the total cost (Row 5) by the number of additional completions (Row 7).

Table 5.1. Benefit-Cost Analysis

Row	Assumption or Estimate	
1	Average SB 22-192 award amount	$1,519
2	Number of recipients	844
3	Total cost of awards	$1,281,877
4	Administrative cost (as percentage of total cost)	10.0%
5	Total cost of program	$1,410,065
6	Impact of award on completion rate	1.8%
7	Number of students who completed due to award	15
8	Cost per completion	$92,816
9	Lifetime benefit of completion	$240,000
10	Net benefit per student	$147,184
11	Total net benefit	$2,236,015

SOURCE: Rows 1 through 3 from RAND analysis of CCCS data.

In Rows 9 and 10, we estimate the total benefit per completion. The difference in lifetime earnings between an individual with some college but no degree and an individual with only a high school diploma has been estimated at $240,000 (Carnevale, Rose, and Hanson, 2012). This is consistent with an earlier review of state-level analyses, which found that earnings gains from a certificate average $4,160 to $7,190 (Belfield and Bailey, 2017). It would require 33 to 58 years to reach $240,000 in earnings according to these state-level estimates (a reasonable approximation for a lifetime of work). When we use $240,000 to represent the lifetime benefit to each completer of receiving a short-term credential, the net benefit of an award is $147,184.

In Rows 11 and 12, we estimate the total net benefit of the program and the ratio of benefit to cost. We multiply the net benefit of an award for each completer by the number of completions that resulted from the program to calculate total net benefit, which was $2.2 million.

Chapter 6. Discussion and Recommendations

Key Takeaways from the Analysis

SB 22-192 provided CCCS and six community colleges with $1.4 million to support community college students pursuing short-term credentials. The state imposed a few restrictions, including a requirement that funding be directed to programs in high-priority workforce areas and a requirement that colleges have each funding recipient attest to economic need. Thus, the six community colleges participating in the initiative had substantial flexibility to award the funding in varying ways.

Colleges distributed the funding in a range of ways. Some colleges targeted the funding to support specific programs or career fields, such as software development or construction, while other colleges allowed all of the programs prioritized in the legislation to be eligible for funding awards. Colleges also varied in the amounts awarded: some distributed a small number of large awards for expensive programs, while others distributed a substantial number of smaller awards for short noncredit certificates or for-credit programs like health care. Some colleges used funds to cover tuition only (including unpaid balances), while other colleges used the funding for books and supplies or testing and licensing fees. And while all colleges collected an attestation of economic loss, the approaches to doing so varied across colleges. Five of the colleges implemented attestation processes that did not require paperwork, while one college required students to submit additional documentation. Some colleges considered other factors in targeting aid to students, such as ability to succeed in a program, financial need, and being ineligible for other aid.

Overall, the evidence suggests that the funding was largely distributed in ways that align with state goals and the priorities established for the funding. A total of 844 individuals with stated economic loss were supported financially as they pursued noncredit and credit training programs. SB 22-192 stated that short-term credentials that received funding should help to prepare recipients for in-demand occupations according to the Colorado Talent Pipeline Report. CDHE suggested colleges should align funding with behavioral health, cybersecurity, software programming or development, education, or health care. We could not exactly determine alignment to priority areas with the granularity of program data available, but the fields generally aligned high-demand, high-wage fields. More than half of the recipients were pursuing credentials in the Health Science, Criminal Justice & Public Safety field, and health care credentials tend to demonstrate the largest earnings gains among short-term credentials and tend to be high-demand fields. The Skilled Trades & Technical Sciences field and the Business & Marketing field were also common, though the evidence on returns to credentials varies by subfield. The Engineering, Technology & Media Arts field and the Hospitality, Human Services

& Education field were the fourth and fifth most common fields. Within the latter, hospitality and human services credentials often have lower earnings returns, but SB 22-192 had prioritized education credentials. Construction was not called out explicitly in SB 22-192 or CDHE's guidance to colleges, but construction is a large sector with the sixth largest number of hires (out of 20 sectors) in the second quarter of 2023 (Colorado Workforce Development Council, 2023). College staff reported that these programs were directly addressing a critical workforce need in their region.

SB 22-192 explicitly asked that funding be targeted to individuals pursuing short-term credentials. Across all recipients, 31.0 percent were pursuing a degree, 45.9 percent were pursuing a for-credit or noncredit certificate, and 12.4 percent were pursuing a license or certification. We assume that degree-seeking students are pursuing short-term credentials as part of their degree pathways, but we cannot determine that for certain with the data available. Most noncredit funding recipients (81.7 percent) completed the program by fall 2023. Approximately one-third (36.6 percent) of recipients in credit-bearing programs completed by fall 2023 and 28.4 percent had not completed but were still enrolled in spring 2024.

In addition to serving individuals with economic loss, we found that Hispanic or Latino students were represented at higher rates among recipients relative to the overall college population, which may reflect differences in the population of students enrolling in short-term programs as well targeting of financial support resources to communities of color. The distribution of awards by gender generally aligned with the overall distribution of college enrollees. Some colleges used funding to target incarcerated individuals. This suggests that SB 22-192 may have been used as a resource to support institution, system, and state goals around equity.

Colorado's initiative was similar to many of the programs being established by states across the U.S. (Murphy, 2023). For example, it is common for states to set student eligibility requirements to target short-term credential funding to low-income students, and some states are targeting the funding to high-priority workforce fields to ensure some control over eligible programs. The average grant awarded in Colorado was $1,519, while the national scan found grants ranging $750 to $3,816 across states (Murphy, 2023). In other ways SB 22-192 differed from the programs offered across the country. For example, Colorado did not set a cap on the amount of the award or the number of grants an individual could receive.

Given that the initiative leveraged pandemic resources, it offered a one-time opportunity for funding rather than a sustainable program for short-term credential support. It took time for the state and system to disperse the funding, leaving the colleges with just three months to distribute grants to students. In interviews, all college staff described the timeframe as a challenge. The timeframe negatively impacted their ability to plan and strategize regarding the use of funds, engage faculty in reaching out to students, and follow up with students who did not initially respond to outreach. However, leaders at CCCS and CDHE can reflect on this opportunity to pilot a funding program and learn from it as they consider opportunities to establish more

permanent funding streams to support short-term credential completion. We provide some considerations for future initiatives in the *Recommendations* section below.

College staff also described the barriers and facilitators they experienced with distributing SB 22-192 funding and reflected on the design choices involved in financial aid programs. Overall, staff appreciated the simplicity and flexibility of SB 22-192's requirements because it allowed them to leverage existing processes and provide funding to students who might otherwise be ineligible. Staff from several colleges reflected on how adding student eligibility criteria and small application requirements to a financial aid program can create substantial barriers for students with economic need to apply for and receive funding. In addition, college staff described how requirements designed to steer learners toward credentials of value can inadvertently deter colleges from serving populations with economic need. One staff person described how limiting program eligibility to credentials that lead directly to "sustainable wages" upon completion could limit access to credentials that lead to sustainable wages eventually. They believed that policymakers should focus on credentials that are "steppingstones" to sustainable wages. In addition, several colleges questioned whether credential completion or job placement goals required by some funders might limit the ability of colleges to serve certain populations and career fields.

Beyond eligibility criteria and application processes, college staff reflected on how funding should be used to help learners pursue short-term credentials. Staff at several colleges emphasized the need to fund job placement assistance and help learners resolve barriers to education such as lack of a computer or internet service, lack of transportation or childcare, and family obligations. Asked about tradeoffs between awarding funding earlier in a program versus closer to completion, staff expressed different opinions. For example, staff at one college said earlier funding would be impactful because it would reduce the amount of loans students take out, while staff at another college said later funding would be desirable because it would help students with the costs of entering employment. These perspectives highlight the tradeoffs inherent in different decisions about the key features of financial aid programs and the factors that Colorado should consider in designing any future program to help learners pursue short-term credentials.

With data on funding recipients only, we could not assess the impact of SB 22-192 funding. This is a critical limitation; there is little that can be determined from examining outcomes data without a rigorous approach to benchmarking those data. For example, a funding award that cleared balances for individuals prior to completion would likely be associated with a high completion rate, while a more substantial grant to individuals in the first semester of a three-semester program would likely demonstrate more dropouts and fewer completers. But did clearing those balances *cause* those students to complete? Several college staff remarked on the lack of impact resulting from awarding funding late in a student's program. For example, one staff person compared this with "rewarding people who were completing a degree." Without a comparison group, we cannot determine which of these two approaches were most effective in

supporting additional individuals in completing credentials. We also lacked data on employment outcomes.

College staff across the six colleges perceived the program to be valuable in supporting individuals. To illustrate how the system and state might think about the return on investment for SB 22-192 funding to CCCS, we leveraged available data on financial aid impacts and credential value to provide a notional cost-benefit analysis. This exercise suggests that the program may have provided a meaningful return on investment with some assumptions about the impacts of the program and the value of credentials. These assumptions may or may not be reasonable given a different program structure and population served, so we caution that this analysis should be interpreted as illustrative.

Recommendations

The analysis in this report is descriptive, so we are cautious in making strong recommendations. But we do ask that CCCS, CDHE, and other key stakeholders consider the following three suggestions.

Recommendation 1: Consider whether/how the state might pursue a longer-term, sustainable approach to funding participation in short-term credentials. As a one-time pandemic relief-funded program, SB 22-192 was limited in the support it could provide for broad development of Colorado's workforce through short-term credential attainment. It will be important for policymakers to consider whether the state's current investments in short-term credentials are sufficient, or whether additional longer-term initiatives in financial support for students and/or institutions might be beneficial in filling gaps. States can direct funding to short-term credentials in varying ways, such as financial aid, program funding, and formula funding. Colorado would want to carefully consider the pros and cons of establishing separate funding streams and policies for short-term credentials versus reshaping existing programs (e.g., state financial aid) to accommodate a broader range of programs and credentials.

Recommendation 2: Design future programs intentionally, considering the implications of different design features for maximizing impact. A longer-term funding opportunity for Coloradans pursuing short-term credentials would provide more time for planning and scaling the program to align with state goals and build on the evidence. There is a fair amount of research on financial aid and growing evidence on shorter-term credentials, and this evidence can inform how states, systems, and colleges make implementation decisions to maximize the effectiveness of financial aid programs (Table 6.1). For future funding initiatives, the state and system might want to retain some of the restrictions in SB 22-192 (e.g., targeting high-priority fields) and consider adding others (e.g., an award ceiling). Even when not setting restrictions in policy, CCCS and CDHE could provide additional guidance to colleges on how to dedicate funding to the opportunities most likely to generate impact.

Recommendation 3: Collect and assess additional evidence on the impact of initiatives. This report provides an initial look at the implementation of SB 22-192, but we were unable to examine impacts. CCCS was forward-thinking in requiring colleges to collect data on recipients at the individual level as a critical first step. Additional analysis could leverage non-recipient data and outcomes data for recipients and non-recipients to explore the possibilities for establishing comparison groups and start to estimate the impacts of the program. More intentional approaches to rollout (e.g., lotteries) could also contribute strong evidence of impact. The state also needs additional evidence on employment, and programs cannot effectively track these data after individuals complete programs, so the data must be drawn from other data sources.

Table 6.1. Implications of Design Features for Impacts and Costs

Program Feature	How Feature May Relate to Effectiveness
Amount of funding, number of grants per student	• Larger grants are associated with bigger impacts (Bettinger et al., 2019; Dynarski, 2003; Swanson et al., 2016) • With a fixed amount of funding, there are tradeoffs between grant size and the number of grantees
Use of funding (e.g., first dollar vs last dollar)	• It is unclear whether first dollar or last dollar approaches are most cost-effective based on the evidence (Dynarski, Page, and Scott-Clayton, 2022) • Most of the positive research evidence comes from programs that limit funding to tuition and fees. • The ability to use grants for nontuition costs may provide more flexibility to colleges to target funding where it can be impactful and can expand the number of students eligible
Student eligibility	• Research has shown that targeting grant aid programs to students who are low-income or financially needy is a cost-effective way to improve college completion (Anderson, 2020; Nguyen, Kramer, and Evans, 2019) • Some argue that the simplicity of broad access programs can be valuable in supporting student success (Carruthers and Fox, 2016) and reducing racial and socioeconomic inequalities (Odle, 2022)
Program eligibility	• Research suggests that returns to short-term credentials vary widely across programs, with credentials in health care often generating larger returns (Stevens, Kurlaender, and Grosz, 2019) • Limiting to certain programs may steer public dollars and individuals to programs with the largest returns but will also limit who can be supported by funding
Application requirements	• There is considerable evidence to suggest that administrative burdens have hampered students' abilities to access grant aid (Gandara et al., 2023; Lee et al., 2021) • There is evidence to suggest that programs without application requirements may result in more equitable outcomes for students (Burland et al., 2022)

Conclusion

Pandemic funding and Colorado's SB 22-192 provided a unique opportunity to test out a temporary funding program for short-term credentials. With limited time to distribute funds, the system and colleges had to focus on getting funds out quickly. But now leaders at CCCS and CDHE can reflect on the initiative and consider how the state might build future, longer-term funding approaches. We descriptively examined the evidence on SB 22-192 and drew on the broader literature to provide some guidance on how leaders might think about the design of short-term credential funding in the future. The distribution of funding largely aligned with the aims of the legislation, but state leaders may want to take additional time to think strategically about the design of any longer-term program.

Abbreviations

CCCS	Colorado Community College System
CDHE	Colorado Department of Higher Education
COVID-19	coronavirus disease 19
IPEDS	Integrated Postsecondary Education Data System
LPN	licensed practical nurse
SB 22-192	Senate Bill 22-192

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