COMMON SENSE INSTITUTE

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COLORADO'S HIGHER EDUCATION FUNDING FORMULA:

OPTIONS FOR REFORM THAT BALANCE LEARNING WITH CAREER SUCCESS

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ABOUT COMMON SENSE INSTITUTE

Common Sense Institute is a non-partisan research organization dedicated to the protection and promotion of Colorado's economy. CSI is at the forefront of important discussions concerning the future of free enterprise and aims to have an impact on the issues that matter most to Coloradans. CSI's mission is to examine the fiscal impacts of policies, initiatives, and proposed laws so that Coloradans are educated and informed on issues impacting their lives. CSI employs rigorous research techniques and dynamic modeling to evaluate the potential impact of these measures on the economy and individual opportunity.

TEAMS & FELLOWS STATEMENT

CSI is committed to independent, in-depth research that examines the impacts of policies, initiatives, and proposed laws so that Coloradans are educated and informed on issues impacting their lives. CSI's commitment to institutional independence is rooted in the individual independence of our researchers, economists, and fellows. At the core of CSI's mission is a belief in the power of the free enterprise system. Our work explores ideas that protect and promote jobs and the economy, and the CSI team and fellows take part in this pursuit of academic freedom. Our team's work is informed by data-driven research and evidence. The views and opinions of fellows do not reflect the institutional views of CSI. CSI operates independently of any political party and does not take positions.

SPECIAL ACKNOWLEDGMENTS

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INTRODUCTION

In a recent survey of 3,800 college prospects, students were asked what motivates them to attend college.[i] The two top responses were "Learning" and "Career." Given the amount of public and private resources that are devoted to higher education—over $1 trillion across the U.S.—these top two reasons seem self-explanatory.[ii] Unfortunately, postsecondary education credential production does not always correlate with strong economic outcomes. As such, it is important to examine whether a state's system of higher education truly prepares graduates for success and leadership in high-demand, high-paying jobs by offering access to credentials linked to a high return on investment (ROI) for the learner, including for first generation and underserved communities.

This study examines the effectiveness of Colorado's outcomes-based funding formula for higher education. It also assesses how targeted adjustments — particularly to the weight assigned to credential production — could enhance workforce readiness and drive economic mobility. Using econometric analysis, CSI finds that **even modest shifts in funding incentives could lead to meaningful improvements in labor market outcomes,** strengthening Colorado's talent pipeline and long-term economic competitiveness.

More specifically, CSI's modeling suggests that if the state centered its outcome-based funding formula to strategically include credentials of value and wage/employment outcomes, which are credentials associated with high workforce demand and a high ROI, Colorado's institutions could set the national stage in terms of bridging workforce gaps and bolstering economic mobility.

Since 2020, Colorado has utilized a performance-based funding (PBF) model for higher education. While this structure is intended to incentivize institutional effectiveness and student success, the current model has some structural inefficiencies and generally lacks responsiveness to the evolving higher education landscape. A primary concern, for example, is that the formula disproportionately favors traditional, full-time students and does not adequately account for the complexities of Colorado's nontraditional student population. Despite national trends showing that roughly one-third of college students enroll part-time, the state's funding mechanism does not fully recognize the academic progression or completion rates of the part-time learners, transfer students, or adult learners even though these learners will be key to fulfilling future workforce needs, especially as the state confronts declining birth rates and shrinking K–12 pipelines.

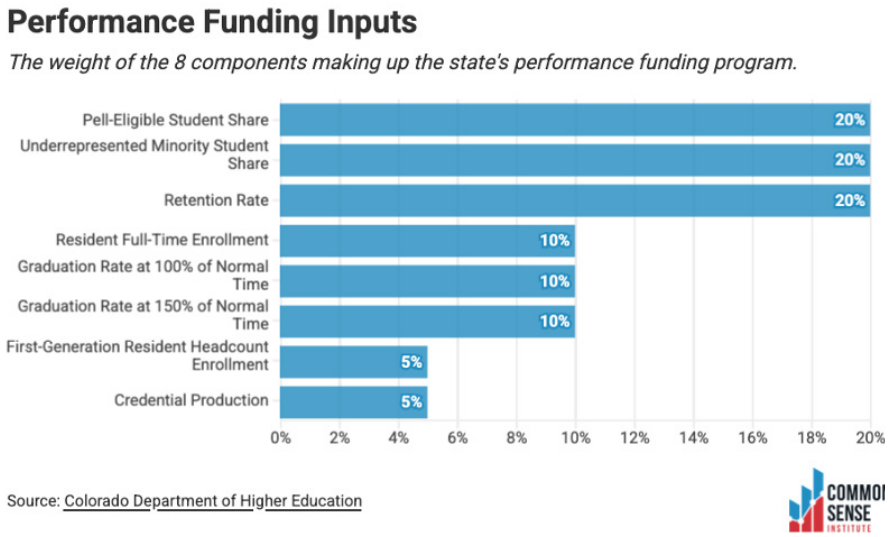
Moreover, the model emphasizes year-over-year changes in degree completion rather than longer-term equity or workforce-aligned outcomes, such as employment.

Background on Current System

Colorado's higher education outcome-based funding model stems from House Bill (HB) 20-1366, approved during the 2020 General Session. The legislation aimed to boost the earnings potential of future college graduates by tying funding allocations to institutional performance across eight key indicators, identified in Figure 1.

Funding allocations differ by institution, depending upon how well Colorado's Institutions of Higher Education (IHE) rank based on these indicators. HB 20-1366 was a step back from an earlier framework, created by HB 14-1319, that had emphasized credentials in high-demand fields like healthcare and science, technology, engineering, and mathematics (STEM).

FIGURE 1



The HB 20-1366 formula allocates funding by using existing base funding plus or minus additional funding based on three steps that are:

Base funding: An institution's funding allocation, less one-time funding from the prior year.

Step 1 — Allocations based upon the Colorado Commission on Higher Education priority: The Colorado Commission on Higher Education may recommend additional funding to add to the base prior to performance funding allocations for the following purposes:

- Progress toward master plan goals, including addressing base funding disparities or funding priorities not addressed through performance funding.
- Additional costs associated with educating resident first-generation undergraduates.

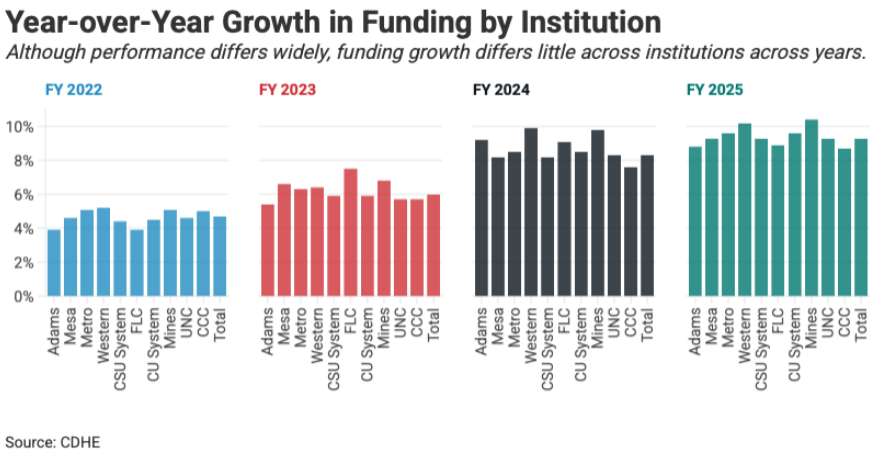
Step 2 — Performance funding: Following the calculation of base funding allocations and pre-performance budget adjustments, all funds are distributed through performance-based funding. This allocation is determined by each institution's relative rate of change over time on a set of performance metrics compared to peer institutions. The state utilizes eight key inputs to assess institutional performance. These metrics are illustrated in Figure 1.

Step 3 — Temporary Adjustments: Institutions may receive temporary funding adjustments based upon legislative or other priorities, such as progress toward a master plan goal. Temporary funding adjustments do not automatically become part of the base in the following fiscal year. Since the new formula was established, the Colorado Department of Higher Education (CDHE) has yet to use temporary funding adjustments.

Key Findings

- Colorado's current funding formula doesn't reward better performance in any substantive way. The lack of real financial rewards provides very little incentive for higher education institutions to move the needle on credentials and other job-ready/society improving skills. As it currently stands, graduates of institutions generating wages in the economy subsidize other institutions and their graduates.
- For public institutions, the total state appropriation is of greater significance than any performance on the eight factors in the performance-based funding formula. This creates stability at the expense of rewarding performance. Thus, funding on the margin creates very little impetus for change, as the base makes up over 97% of total funding.

FIGURE 2



- Since the formula's enactment, no institution has seen its share of total state funding increase or decrease by more than **1%** - although some have seen declines in student enrollment greater than that.
- The lack of incentive is clearly shown in the following figure, which shows that institutions all generally see similar growth rates in funding each year.
- Funding for the Colorado State University (CSU) system grew by **44%** over the past five years. Only **0.67%** of that growth was due to performance funding. Virtually all of the increase was due to increased appropriations, further contributing to the above point.
- **Since the implementation of the current funding formula, state appropriations for higher education have grown substantially; however, this increase has coincided with a decline in credentials.**
- While the number of credentials has declined, funding allocated to the credential portion of the performance funding formula increased **169.4%** between FY 2019-20 and FY 2022-23, from about **$12.4 million** to about **$33.4 million.** Funding per credential has increased from **$784** per credential in FY 2020-21 to **$1,058** per credential in FY 2022-23.
- **Since the new funding formula has been enacted, the state has bonused $6,843,000 (or almost 7 million dollars) to produce 2,112 fewer credentials.**

- The funding disparity per credential is even more pronounced at the institutional level. For instance, the number of credentials dropped from 5,950 in FY 2020 to 5,560 in FY 2023 for the CSU system. In contrast, their credential funding rose, growing from $6.6 million in FY 2024 to $7.3 million in FY 2025, the latest available information at the time of writing. This makes the point or begs the question... is this performance funding or just status quo?
- CSI modeled hypothetical scenarios using Colorado's current funding formula and potential institutional investment strategies to illustrate the economic value of high-demand, high-ROI degrees. The analysis' results suggest that increasing investment in credentials of value—those aligned with workforce demand and strong economic returns—would generate greater positive impacts for Colorado's economy.
- Assuming a 20% increase in the level of Coloradan graduates completing credentials of value, CSI estimates that (spurred by a highly talented pipeline of graduates) nearly **19,000 new jobs** would be created in Colorado by 2035.
    - This would additionally boost population growth of **24,804** by 2035, a number that exceeds the Ball Arena capacity by over 3,000.
- Colorado's higher education institutions could improve alignment between program offerings and high-value credentials tied to labor market demand. Notably, gaps exist in fields such as construction trades; legal studies; physical sciences; social sciences; and biological and biomedical sciences. For example, **between 2001 and 2021, only 11 of Colorado's 32 higher education institutions offered programs in construction.**
- Data shows wages are typically either the first or second most important reason students attend college in the first place. CSI modeled a scenario in which the funding formula puts a 50% weight towards credentials of value production and a 50% weight towards earnings outcomes of graduates (with no guaranteed prior year funding base). Based on this assumption, findings suggest that current allocation levels would shift significantly, with three institutions seeing large increases: the University of Colorado (+$91 million), the School of Mines (+$35 million), and the Community College system (+$25 million).
    - On the other end of the spectrum, institutions that generally fail to produce significant wages in the economy relative to their current funding allocation include, among the other institutions: Metro (-$44 million), University of Northern Colorado (-$32 million), and Adams (-$20 million).
- As Colorado reviews its performance funding model, leaders could find ways to make performance more relevant and ensure the performance metrics include additional incentives for credentials of value.

RECOMMENDATIONS

- As noted later in this paper, the state is unique in what it considers important in funding higher education. The one factor in which the state aligns with most other states is credential production, with at least 62% of states using it in their accountability and funding metrics. In contrast to credential production, the State places significant weight on factors that empirically produce little to no economic value, including:
  - Only 42% of states place any weight on Pell-eligible or low-income students.
  - Only 28% of states consider an underrepresented background as important for funding.
    - By our count, only 30% of states consider retention rate.
- CSI could not find a state that uses a form of first-generation resident headcount in its funding formulas the way Colorado does.
  - A minority of states use resident full-time enrollment in their funding formulas.
- Graduation rates are used by approximately a quarter of states, with 18% using graduation rate at 100% of the normal time and 22% using the graduation rate at 150% of the normal time. Unlike states such as Florida, Colorado's current higher education funding formula does not incorporate post-graduation employment outcomes. Introducing employment metrics as an input variable could better align state funding with workforce outcomes and labor market needs. By including workforce outcomes, the formula becomes more balanced. It would then incorporate a core factor driving students to attend higher education in the first place.
- Approximately one-third of states use credentials of value in some form (36%). In looking at job growth across states, states that employ credentials of value in their funding considerations generally see higher job growth. Policymakers may want to include credentials of value in the State's funding formula.
- The current formula moves slowly. The three and four-year lags in the formula are the reason institutions pay much more attention to the size of the appropriation pie than their share of that pie. Policymakers could move away from such a structure to one in which institutions are offered a base in funding and new funding is allocated based on up-to-date performance for: (1) credentials of value and (2) job placement/employment outcomes. This provides a real incentive to encourage students towards higher lifetime earnings potential while simultaneously preserving core instructional capacity in fields that may not produce high value outcomes. CSI thinks this strategy would offer students a well-rounded education that also considers the risk taxpayers are incurring when investing in a student's future.

EDUCATIONAL ATTAINMENT AND WORKFORCE ALIGNMENT

The Lumina Foundation's 2024 report, *A Stronger Nation*, found Colorado leads the nation in post-secondary educational attainment. Nearly two thirds of residents between the ages of 25 and 64, 62.9%, have some form of postsecondary credential.[iii] That number is up from 60.5% in 2022.[iv] Though Colorado's outcomes are helped by its ability to recruit an educated workforce, much of the increase was due to targeted efforts by schools to improve student success and graduation rates, even as enrollments have fluctuated (recent lower national in-migration trends make up a large factor as well). The state has also invested in targeted programs such as Care Forward, Skill Advance, and Opportunity Now to help Coloradans pursue short-term credentials in high-demand fields.[v] **As state resources become more constrained, it is increasingly vital to support students as they pursue industry-aligned, in-demand credentials that lead to long-term economic security.**

Credential production does not necessarily correlate with a strong economy or labor market, however, so while Colorado's high rate of postsecondary credentials is laudable, it is important to examine whether the system truly prepares graduates for success and leadership in high-demand, high-paying jobs by improving access to credentials that are linked to a high ROI for the learner.

Increasingly, there is a growing need to keep postsecondary education accessible, relevant, and aligned with labor market demands. It is no longer enough to only focus on attainment; Colorado's IHEs should consider offering more value-providing credential pathways that help graduates earn higher wages and build meaningful careers in high-demand industries.

As Colorado reviews its performance funding model, leaders could explore ways to make performance more relevant and ensure the metrics include additional incentives for *credentials of value.*

To explore the higher education outcome-based funding formula and its effectiveness, CSI utilized data from multiple sources, including: the Post-Secondary Employment Outcomes (PSEO) data explorer tool, Colorado Department of Higher Education (CDHE), Office of Labor Market Information (LMI) at the Colorado Department of Labor and Employment (CDLE), the Colorado Demography Office (SDO), the Massachusetts Institute of Technology (MIT), and the Lumina Foundation. CSI would like to thank all of these organizations for their commitment to providing valid, robust public datasets.

Growth in State Funding

As indicated, policymakers' performance funding and other decisions have resulted in somewhat different funding growth rates from FY 2020-21 to FY 2024-25. Since FY 2020–21, Western Colorado University (WCU) has recorded the highest percentage increase in state funding. This growth was largely driven by substantial non-performance-based funding, such as rural higher education, rather than by metrics traditionally used to assess institutional performance, such as student outcomes or degree completion.

In contrast, the CSU system has seen the slowest funding growth during that period. Its increase was just 44%. **Are the differences in funding growth effective in producing a stronger, more economically relevant higher education system?**

The disproportionate funding growth at institutions like WCU, absent corresponding improvements in performance, suggests Colorado's funding formula is vulnerable to inconsistencies and supplemental allocations that bypass performance criteria altogether. **As a result, institutions critical to the state's long-term workforce development strategy may be underfunded relative to their contributions and needs.**

The rise in funding is occurring even though student enrollment is down at six of the 10 institutions shown (Adams, CSU system, CU system, Mesa, Metro, and UNC). The four growing institutions include CCCS, FLC, Mines, and Western.

FIGURE 3

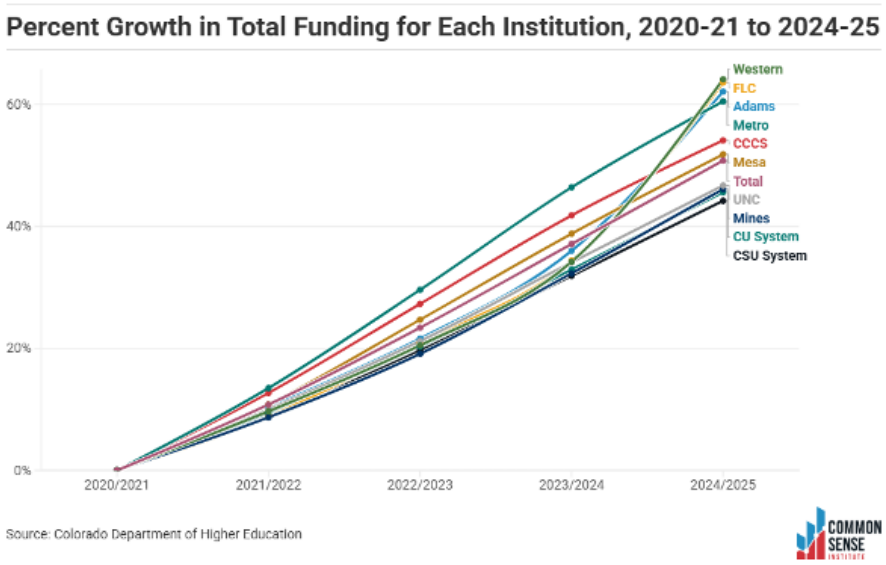
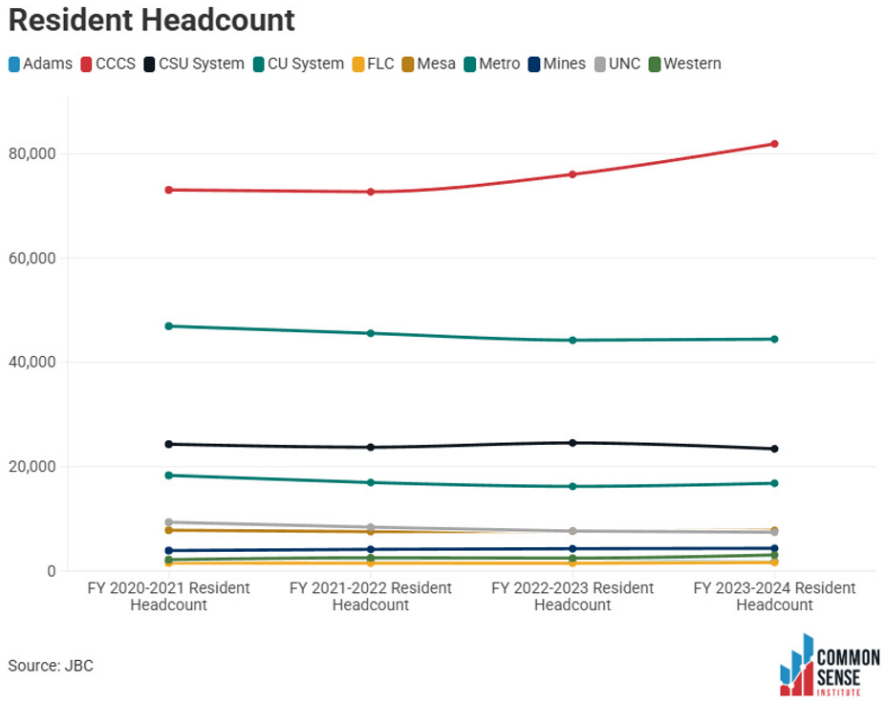


FIGURE 4



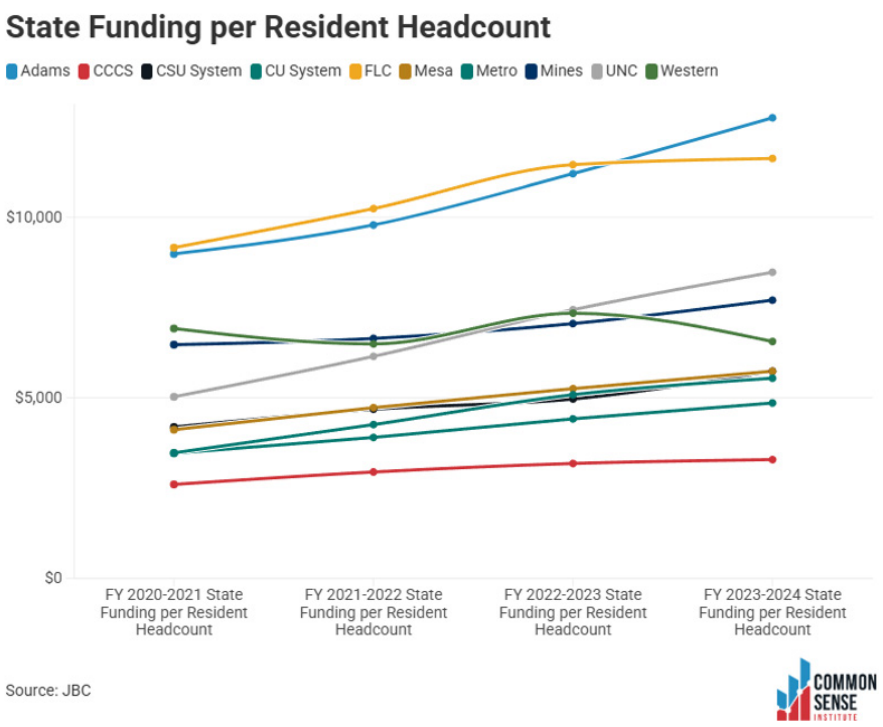
Given that the formula is über-lagged (3/4 years) and places only 10% weight on resident full-time enrollment, the formula exacerbates differences in funding per student, depicted below as state funding per resident headcount.

In terms of total funding, Colorado's three largest public postsecondary systems — the Colorado Community College System (CCCS), the University of Colorado (CU) system, and the CSU system — receive the majority of allocations. As Figure 6 shows, in FY 2024-25, CCCS received approximately 29% of total funding, followed by CU (23%) and CSU (15%).

Share of State Funding

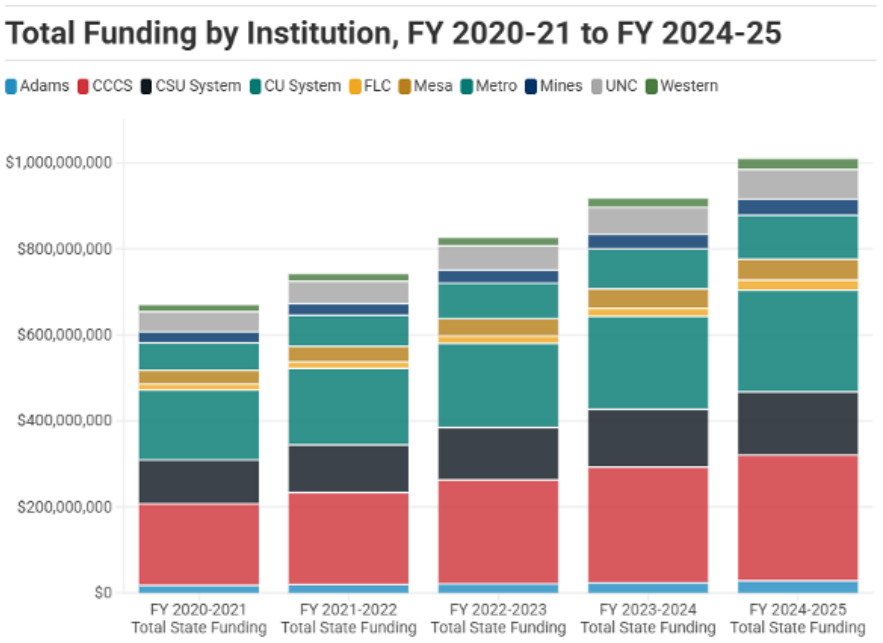
While total state funding for higher education in Colorado has increased significantly across all public institutions over the past five years, **the proportional distribution of funding among systems has shifted only marginally.** This limited movement is largely a function of the funding formula's structure, which emphasizes year-over-year

FIGURE 5



Source: JBC

FIGURE 6



Source: Colorado Department of Higher Education

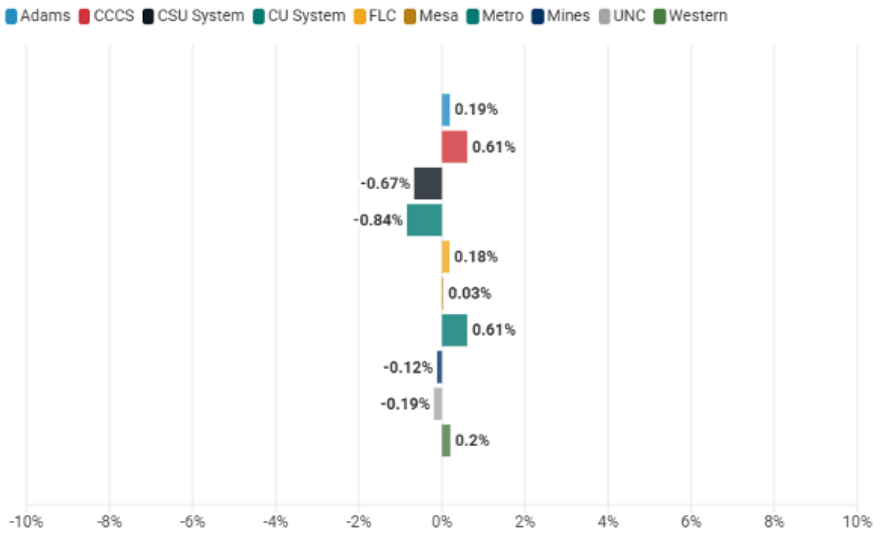
continuity and incremental adjustments rather than major redistributions based on changing institutional needs or performance.

For example, the CCCS and the Metropolitan State University of Denver (MSU Denver) — the two systems that experienced the largest increases in their share of total funding — saw their shares rise by only 0.61 percentage points over the five-year period. Conversely, the CU and CSU systems experienced slight declines in their funding shares, decreasing by 0.84 and 0.67 percentage points, respectively, as shown in Figure 7.

FIGURE 7

Change in the Percent of Total Funding by Institution from FY 2020-21 to FY 2024-25

The formula is built in such a way that very little of total funding moves between institutions based on performance.



Source: CSI Research and Analysis, Colorado Department of Higher Education

This relative stability in funding distribution suggests the current formula lacks the necessary flexibility to meaningfully respond to shifting enrollment patterns, performance metrics, or equity considerations. As a result, institutions that are growing in enrollment or serving high-need populations are slow to see corresponding increases in funding share, limiting their capacity to scale programs, services, or infrastructure to align with student demand or workforce needs.

Performance Funding Methodology Has Minimal Impact

Figure 7 in the previous section shows that budget allocations have changed little over the years because of the marginal adjustments inherent in the allocation formula. Due to the formula structure, institutions have little incentive to shift their instructional preferences for future workforces.

As shown, the performance funding formula matters very little to each institution's funding. For instance, Adams saw total funding increase 62% over the past five years, but only 0.19% of that growth was due to its improvement relative to the other institutions on performance funding. **If the goal is to provide an incentive for economic growth outside of higher education, the current funding formula does not achieve this goal in a material way.**

This point is even clearer when examining the percent change in credential funding since FY 2019-20 and the percent change in credentials. As Figure 9 shows, since the funding formula was signed into law, the budget for credential production has expanded significantly while credential growth declined. The slope of these curves became even more dramatic after the funding formula enactment in FY 2020-21.

FIGURE 8

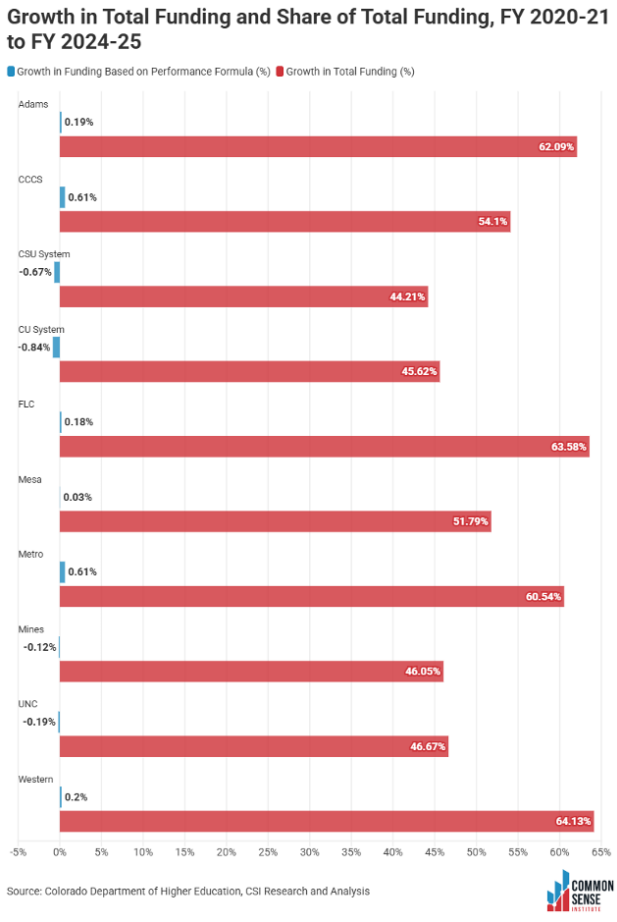
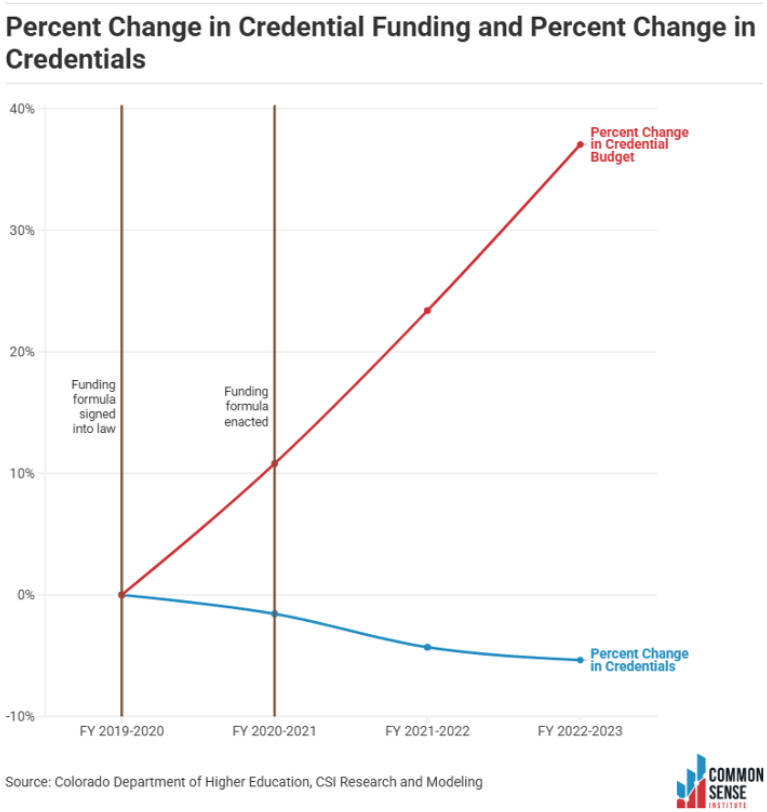


FIGURE 9



BROADER TRENDS IN HIGHER EDUCATION AND THE EARNERS OF DEGREE HOLDERS

Given that the credential production weight of the performance funding formula is of extremely minor importance to the funding of an institution, how are objective measures of output faring in this system?

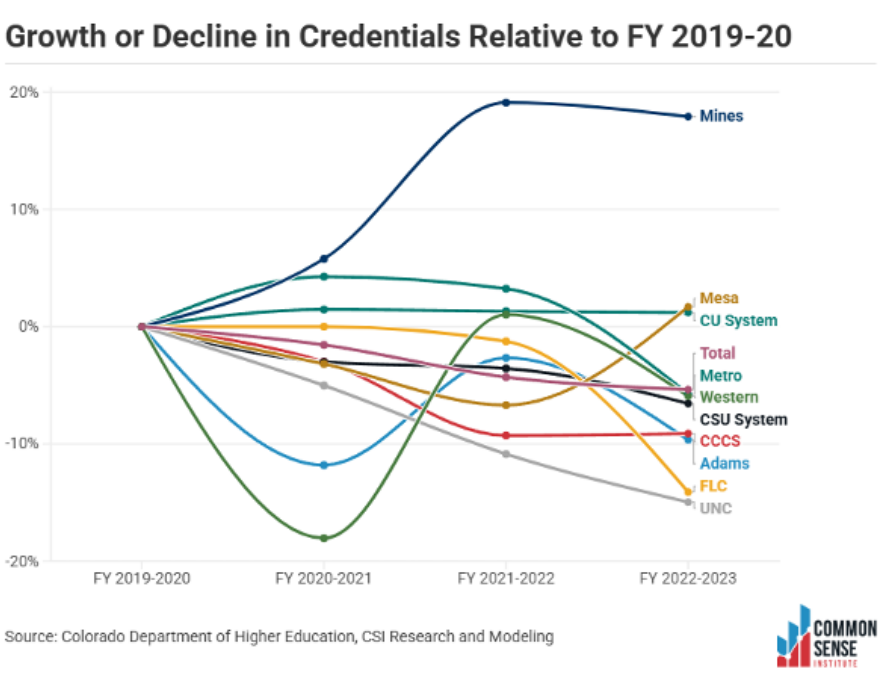
This section examines each of the eight measures used in the performance funding formula and other potential measures of performance: credential production, resident full-time enrollment, first generation resident headcount enrollment, retention rate, Pell-eligible student share, underrepresented minority student share, graduation rate at 100% of normal time, and graduation rate at 150% of normal time.

Credential Production (5% Weight)

According to the CDHE, a credential is "a piece of documentation that verifies an individual's qualifications, competencies, or skills, often related to specific job-relevant skills or industry standards, and can include degrees, certifications, or other forms of recognition."[vi] At 5% of the current funding formula, the number of credentials has declined from 48,031 in FY 2019-20 to 45,454 in FY 2022-23 (Figure 9). Interestingly, although the number of credentials has **declined,** the funding allocated to the credential portion of the funding formula has **increased** by $12.4 million from what would have been $33.4 million in FY 2019-20 had the formula been in effect in that year.

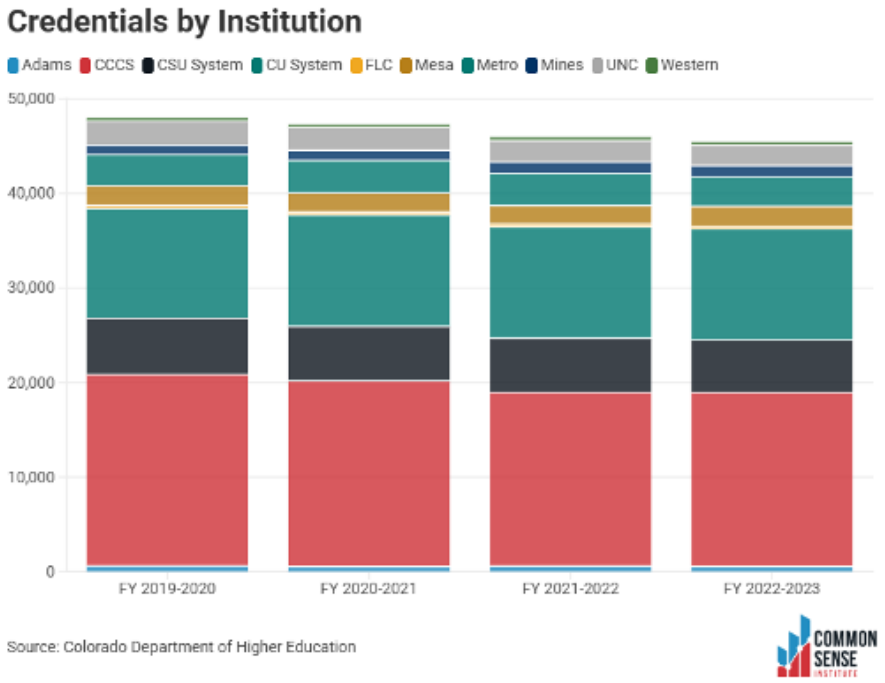
Overall, given the drop in credentials and the increasing funding for credentials, the cost per credential using just the credential funding portion of total performance funding has gone from $784 per credential in FY 2020-21 to $1.058 per credential in FY 2022-23.[vii]

FIGURE 10



As Figure 10 shows, on a growth basis, Colorado School of Mines has seen the largest increase in credentials. Its credentials have risen 18% since FY 2019-20. Other institutions that have increased their credential output include Mesa College (+1.7%) and the CU System (+ 1.2%). Conversely, the University of Northern Colorado (UNC) and Fort Lewis College (FLC) have seen awarded credentials drop by 15% and 14%, respectively.

FIGURE 11



While Colorado's funding formula is partially outcomes-based, CSI's analysis finds that institutions with declining performance metrics are still receiving substantial increases in funding. This suggests that a significant share of state dollars is not tied to demonstrated performance or value. In effect, this results in funding nonperformance—allocating public resources to institutions without accountability for student outcomes, labor market alignment, or return on investment. Strengthening the formula's ties to performance indicators, such as credential completion in high-demand fields or graduate employment outcomes, would ensure funding is better aligned with both institutional effectiveness and the state's economic priorities.

Notably, as Figure 10 suggests, although institutions have had varied success in awarding credentials, the overall number of credentials is **down 5% from FY 2019-20 to FY 2022-23.** These funding disparities imply that Colorado's current performance-based funding formula is not functioning effectively in terms of incentivizing or expanding credential production across the state's public institutions. Other factors, including declining undergraduate enrollment — a trend that has persisted since 2010 — and lingering negative impacts of COVID-19, have also likely led to downticks in higher education's credential production.[viii] **Thus, the state has bonused $6,843,000 (or almost 7 million dollars) to produce 2,112 fewer credentials.**

At the same time, the credentials portion of the funding formula has grown from about **$33 million** in FY 2021 to approximately **$41 million** in FY 2023. Table 1 shows each institution's estimated share of the credentials portion of the funding formula. Columns 6 and 7 suggest no correlation between subsidy level and credential production.

TABLE 1

Credentials and Estimated Funding Formula Allocations for the Credentials Weight Component, FY 21 - FY 23

The two far right columns show no connection between credentials and funding for credentials.

Institution	Credentials, FY 21	Credentials, FY 23	Credential Portion of the Funding Formula, FY 21	Credential Portion of the Funding Formula, FY 23	Change in Credentials	Change in Credential's Portion of Funding Formula
Adams	530	543	$864,000	$1,050,000	13	$186,000
CCCS	19,632	18,390	$9,493,000	$12,089,000	-1,242	$2,596,000
CSU System	5,771	5,560	$5,093,000	$6,098,000	-211	$1,005,000
CU System	11,787	11,756	$8,120,000	$9,772,000	-31	$1,652,000
FLC	319	274	$707,000	$856,000	-45	$149,000
Mesa	2,010	2,111	$1,609,000	$2,007,000	101	$398,000
Metro	3,449	3,118	$3,183,000	$4,125,000	-331	$942,000
Mines	1,063	1,185	$1,269,000	$1,510,000	122	$241,000
UNC	2,404	2,152	$2,350,000	$2,849,000	-252	$499,000
Western	318	365	$752,000	$906,000	47	$154,000

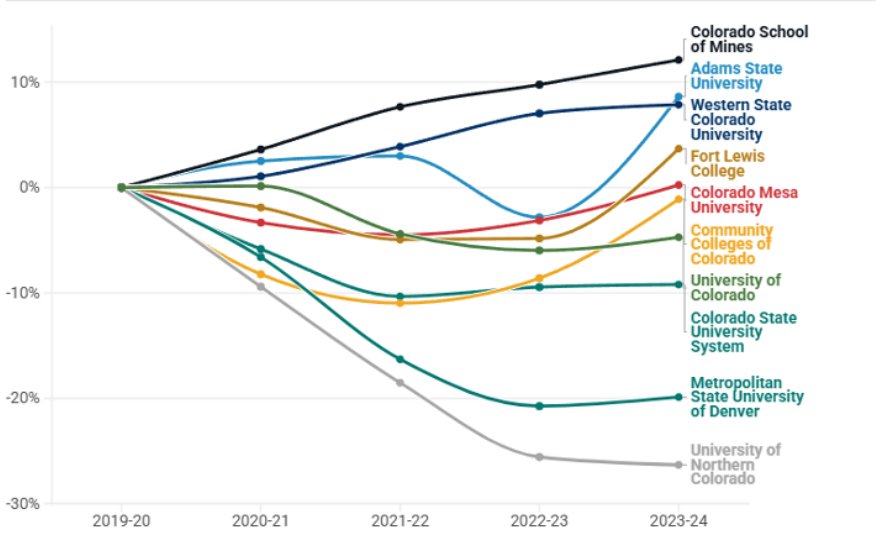
Resident Full-Time Enrollment (10% Weight)

Figure 12 shows the growth or decline in resident full-time enrollment for several institutions.

Only four institutions — Colorado School of Mines, Adams State University, Western State College University, and Fort Lewis College — have seen a marked increase in these numbers from 2019-20 to 2023-24. The rest either have remained largely the same during this period or declined significantly. Two entities, Colorado Mesa University and Community Colleges of Colorado, now seem to be reversing towards an upswing in enrollment.

FIGURE 12

Growth or Decline in Resident Full-time Students Relative to FY 2019-20



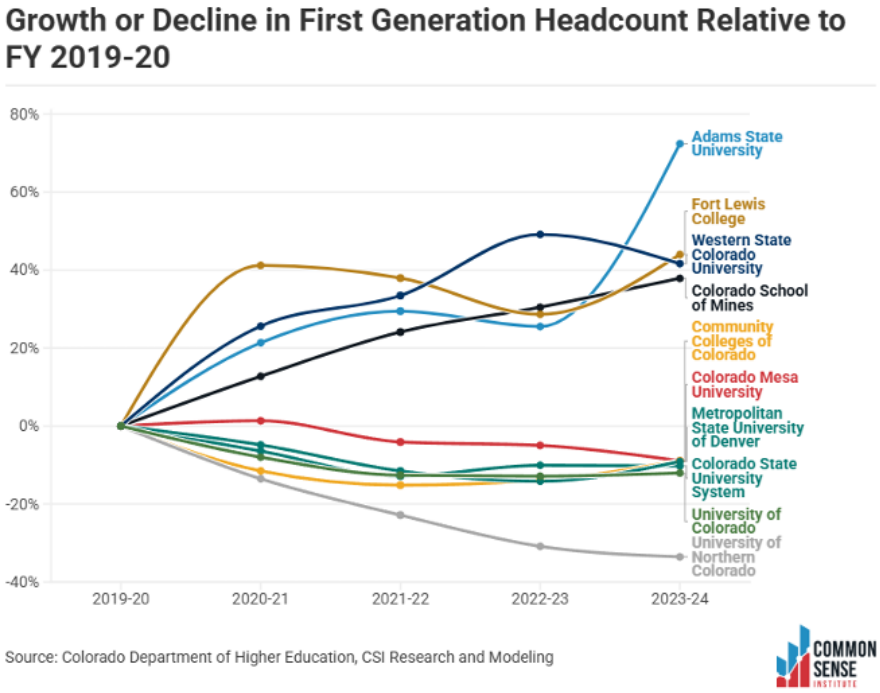
Source: Colorado Department of Higher Education, CSI Research and Modeling

First-Generation Resident Headcount Enrollment (5% Weight)

As shown in Figure 13 on the following page, the variation in first generation headcount is wide, ranging from an increase of nearly 80% at Adams State University to a decline of nearly 40% at the University of Northern Colorado.

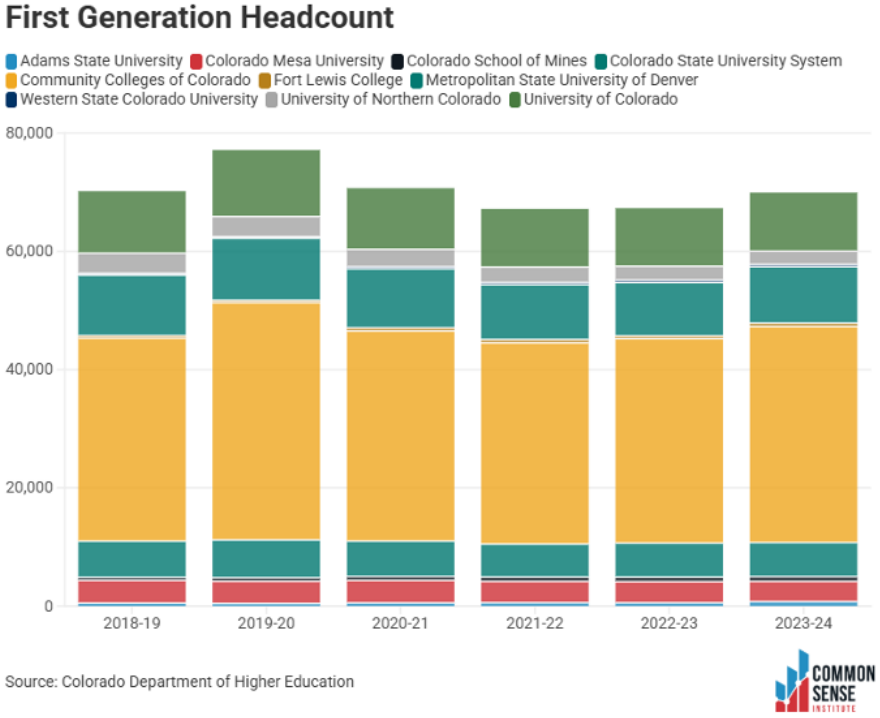
One factor to consider is that, for this metric, percentage growth is sensitive to the student base. For instance, a 200-student increase in first generation students at Adams State is a much larger relative increase than a 200-student increase at the University of Colorado. In order to provide context, the next page also shows the total count of first-generation students by institution.

FIGURE 13



Source: Colorado Department of Higher Education, CSI Research and Modeling

FIGURE 14



Source: Colorado Department of Higher Education

Pell-Eligible Student Share (20% Weight)

The term "Pell-eligible" refers to students with an Estimated Family Contribution (EFC) low enough to qualify for federal Pell grants, regardless of whether the student receives a grant. With this, both graduate and undergraduate students are considered. Colorado's formula does not seem to have led to much of an increase in students eligible for Pell Grants. The following two figures show the share of students eligible for Pell Grants by institution and the percentage change in the share of Pell-eligible students.

FIGURE 15

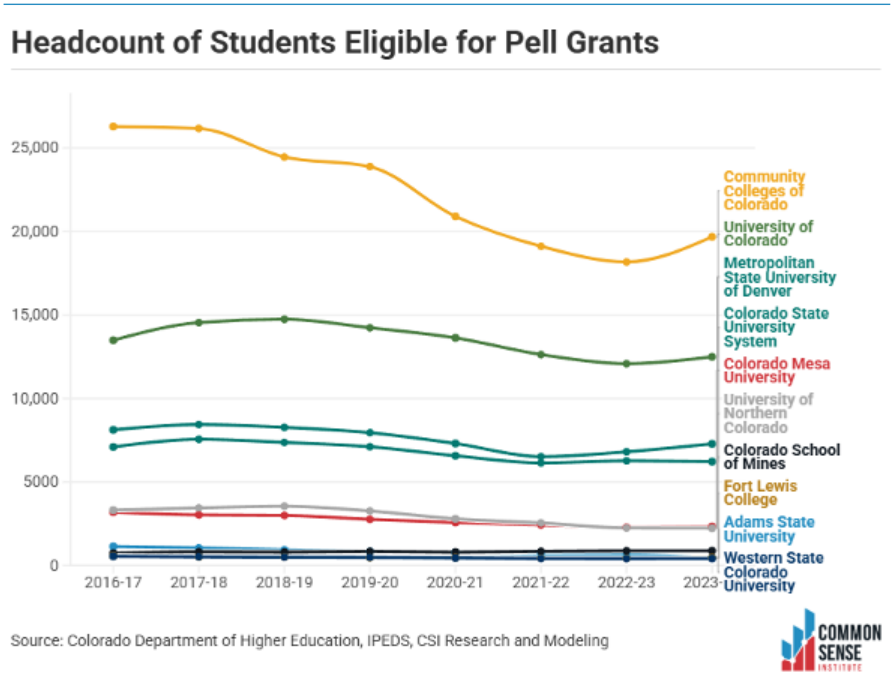
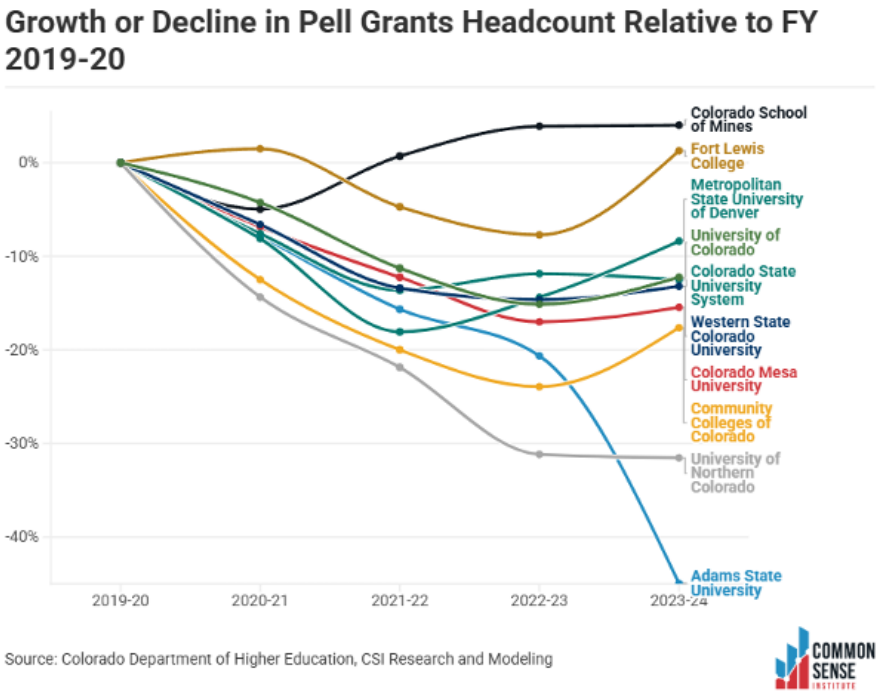


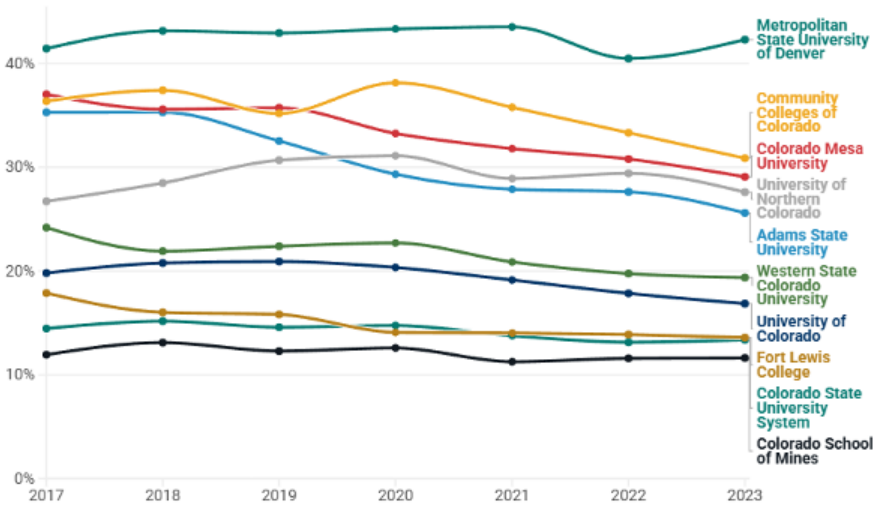
FIGURE 16



The two figures on this page examine the Pell-eligible headcount relative to the total population of students and the growth or decline in the share of students eligible for Pell Grants as a percentage of total students with the growth in state funding.

FIGURE 17

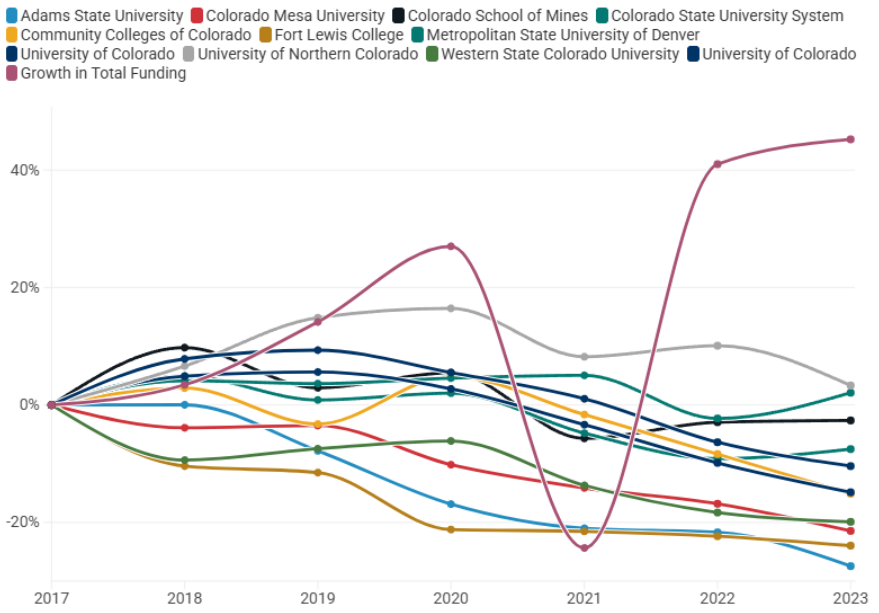
Headcount of Students Eligible for Pell Grants as a Share of Total Students



Source: Colorado Department of Higher Education, IPEDS, CSI Research and Modeling • *Note: The percentage of students Pell grant eligible per total number of students may differ slightly from the estimates used in the funding formula.*

FIGURE 18

Percentage Growth or Decline in the Share of Students Pell Grant Eligible



Source: Colorado Department of Higher Education, IPEDS, CSI Research and Modeling • *Note: The percentage of students Pell grant eligible per total number of students may differ slightly from the estimates used in the funding formula.*

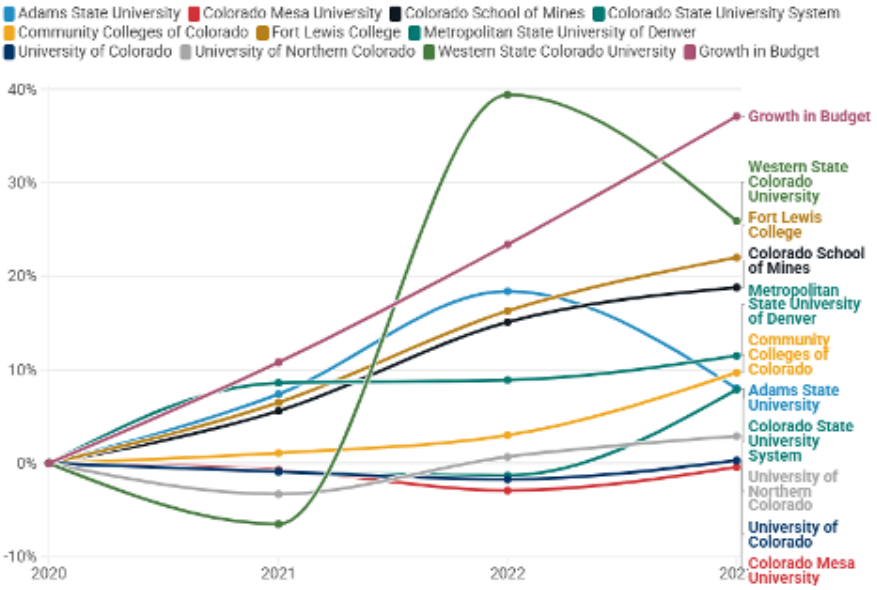
Underrepresented Minority Share (20% Weight)

The next figure examines growth in underrepresented minority students relative to the change in the budget for these students. As shown, there is little connection between the two numbers. This outcome stems partly from the lookback nature of the formula, where three-year and four-year average changes are used to share out a growing pie. As has been noted, the budget continues to grow regardless of performance.

FIGURE 19

Growth or Decline in Underrepresented Minority Students as a Share of Total and Budget Growth

There's been a wide variation in the growth or decline in underrepresented minority students as a share of total, but much less variability in the budgeted amount intended to address the issue. When budget growth happens regardless of performance on a self-selected measure, it lessens the incentive to perform.



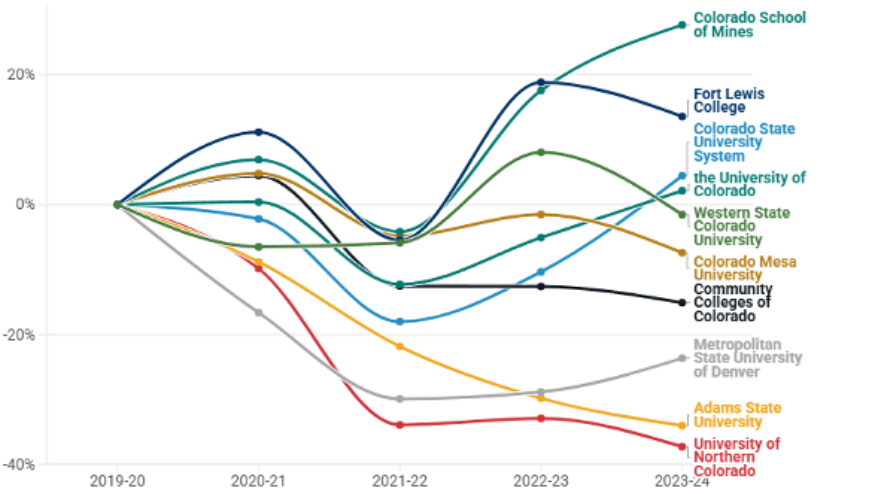
Source: Colorado Department of Higher Education, IPEDS, CSI Research and Modeling • Note: The numbers may not match up exactly with the final numbers used for budgeting. CSI attempted multiple times to use the final budgeted numbers. The overall trends hold.

Retention Rate (20% Weight)

Figure 20 shows the growth or decline in student retention from FY 2019-20. Only four institutions — Colorado School of Mines, Fort Lewis College, the CSU system, and the University of Colorado — have improved since the current formula was put into place.

FIGURE 20

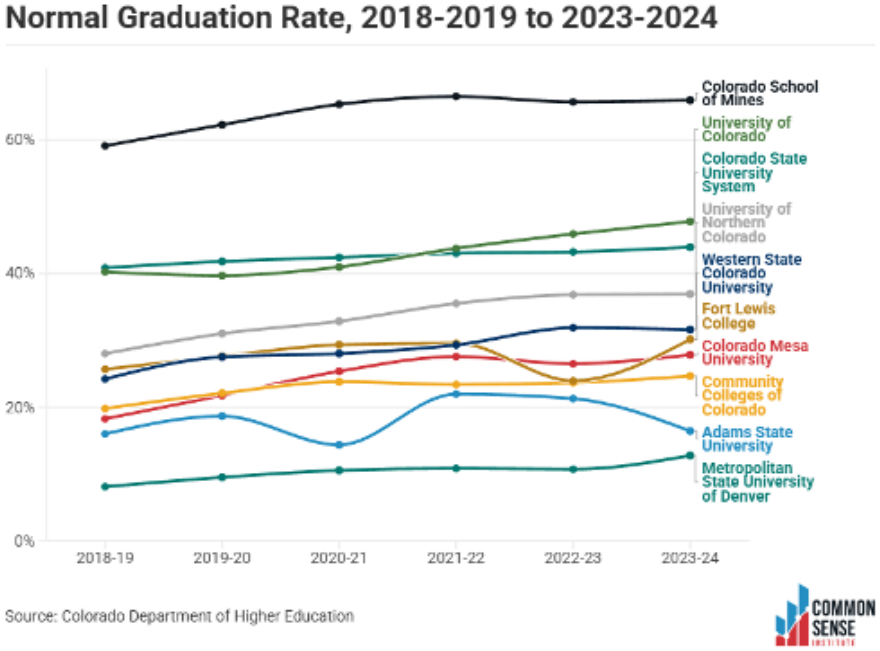
Growth or Decline in Retained Students Relative to FY 2019-20



Source: Colorado Department of Higher Education, CSI Research and Modeling

As Figure 21 shows, graduation rates for students completing a degree within the normally allotted time to complete the degree also have not improved with the current formula. Given the nature of this variable, the normal graduation rate may be more of an effect than a cause that can be meaningfully influenced to a sufficient degree by institutions. Thus, the lack of much improvement in the measure.

FIGURE 21

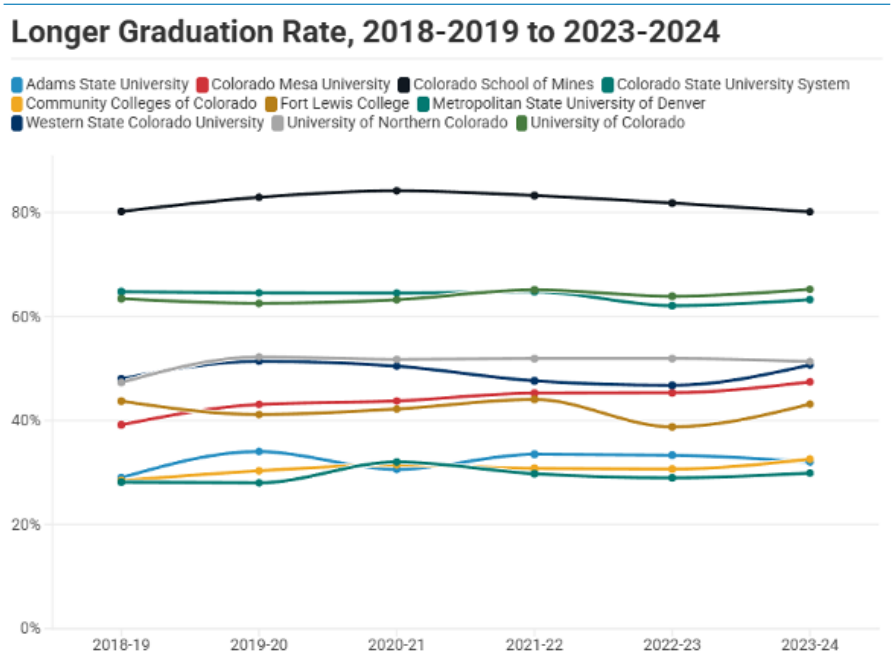


Source: Colorado Department of Higher Education

Graduation Rate at 150% of Normal Time (10% Weight)

Figure 22 indicates that graduation rates for students completing a degree over a longer time horizon also have not improved with the current formula.

FIGURE 22



Source: Colorado Department of Higher Education

WHAT OTHER STATES ARE DOING

While Colorado incorporates several important metrics into its performance-based funding model, it lacks a clear emphasis on student progression and alignment with workforce needs. As the following examples show, other states clearly prioritize these areas.

Tennessee. With the Complete College Tennessee Act of 2010, Tennessee shifted its funding model toward performance metrics. These factors now encompass around 80% of the allocation of points awarded by the state. Tennessee's formula also incorporates premiums to prioritize outcomes involving underserved populations, including adult and low-income students, and degrees in high-need academic fields like STEM and health care.

Tennessee's funding formula also distinguishes between community colleges and four-year institutions by employing distinct performance indicators for each sector. This differentiated approach allows for more tailored accountability and resource allocation. Notable and innovative inputs used in Tennessee's model include:

- The total number of short-term certificates — defined by the state as a certificate that requires less than 24 credit hours — awarded during an academic year;
- The number of long-term certificates — a certificate that requires more than 24 credit hours — awarded during an academic year;
- Job placement, which encompasses all work-eligible or work-capable graduates employed within a year of graduation; and
- Non-credit workforce training hours that students complete in an academic year.

Texas. In 2023, Texas adopted an outcomes-based formula to allocate state funding to its community colleges. The formula aims to align institutions with Texas's educational goals and workforce needs. Texas's formula weights outcomes affecting target populations, including economically disadvantaged students (25%), academically disadvantaged students (25%), and adult learners (50%).

The first metric Texas uses is the number of students completing 15 semester credit hours (SCHs) of dual credit or dual enrollment through an institution, provided these hours meet degree or workforce credential requirements.

The second indicator is the number of students who complete 15 SCHs and either transfer to a Texas public university or enroll in a structured co-enrollment program.

The final metric is the total number of degrees and credentials awarded, encompassing bachelor's and associate degrees, Advanced Technical Certifications (Levels 1 and 2), occupational skills awards, Institutional Credentials Leading to Licensure or Certification (ICLCs), Opportunity High School Diplomas, and Third-Party Credentials. (An Opportunity High School Diploma refers to earning a high school diploma through concurrent enrollment in a competency-based education program.) For these credentials, specific criteria apply: Among other requirements, ICLCs must meet a minimum total contact-hour requirement, and certificates are counted only if, on average, they yield a positive ROI within certain timeframes, ensuring only credentials of value contribute to this measure. Additionally, extra weights are applied to degrees in high-demand fields as defined by the Texas Higher Education Coordinating Board.

Florida. Several components of Florida's outcomes-based funding model are explicitly designed to align institutional performance with the state's broader educational and workforce priorities, thereby linking public investment in higher education to measurable economic and policy goals. Efforts include:

- The number of bachelor's degrees awarded in "programs of strategic emphasis" like STEM, with double majors double-counted;
- Median wages of full-time bachelor's degree graduates a year out from graduation, excluding self-employed, military, or minimum-wage workers; and
- An institution-specific benchmark that allows IHEs to choose a unique component they would like to be measured on that's tailored to its goals and strengths. Examples include:
- Florida Poly measures workforce experiences;
- UCF looks at the total number of degrees awarded to Hispanic and African American students; and
- UF examines its endowment size.

COLORADO'S FUNDING MODEL COMPARED TO OTHER STATES

Colorado's higher education funding model is distinct in its reliance on a base-plus approach whereby annual allocations begin with prior-year funding levels and are then adjusted marginally using the eight specific variables already discussed.

As Figure 23 shows, Colorado is one of 26 states that use some sort of base funding model. As Figure 24 on the next page demonstrates, 19 other states incorporate performance or outcomes funding in a marginal or supplementary manner. Another 13 states apply performance-based funding selectively — typically limited to certain sectors such as community colleges — while 18 states do not employ any form of performance or outcomes-based funding.

This comparative positioning highlights Colorado's cautious adoption of performance funding mechanisms. While the state has taken steps to reward institutions based on student outcomes, the modest

FIGURE 23

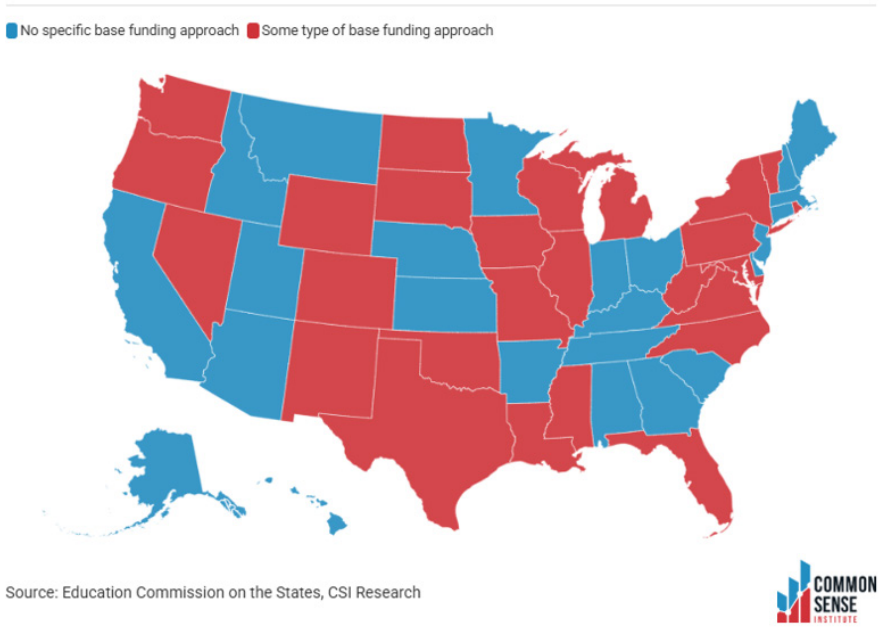
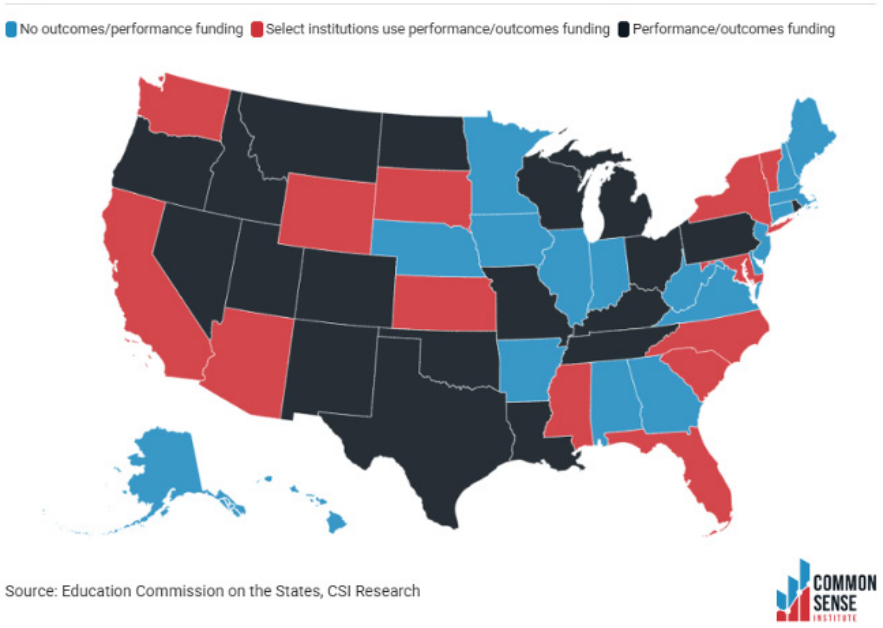


FIGURE 24



scale and limited influence of these metrics in the overall funding formula suggest performance-based funding plays a secondary role relative to historical funding levels. **As such, Colorado may benefit from further refinement of its model to more meaningfully connect state appropriations to institutional performance, and workforce alignment – the current model drives little or no motivation to change or perform.**

Further Details on What Other States Consider

Given this background, how does Colorado compare with other states in terms of what is considered in funding formulas? In terms of how they compare with Colorado, the following table indicates how many of the other 50 states consider the same or similar factors as Colorado. Overall, the top three factors Colorado considers that other states also generally consider are credential production (62%), low-income students (42%), and retention rate (30%). No states consider first generation headcount, and only 28% consider underrepresented minority student share. When looking at performance funding, resident full-time students (6%), graduation rate at 100% of the normal time (18%), and graduation rate at 150% of the normal time (22%) are also infrequently used. Recently, growing interest among states concerns job placement/employment, with 22% of states now placing some sort of consideration of this outcome in funding.

Further details on other states' funding considerations is given in Appendix C.

TABLE 2

Factors Considered in States' Higher Education Funding Systems			
Factor	**CO's Funding Weight**	**Number of states (not including CO)**	**Percentage of states (including CO)**
Pell-Eligible Student Share	20%	20	42%
Underrepresented Minority Student Share	20%	13	28%
Retention Rate	20%	14	30%
Resident Full-Time Enrollment	10%	2	6%
Graduation Rate at 100% of Normal Time	10%	8	18%
Graduation Rate at 150% of Normal Time	10%	10	22%
First-Generation Resident Headcount Enrollment	5%	0	2%
Credential Production	5%	30	62%
Credentials of Value	0%	17	36%
Uses Jobs/Employment Outcomes	0%	10	22%

CONNECTING DEGREES WITH JOBS AND PERFORMANCE FUNDING FACTORS WITH DEGREES

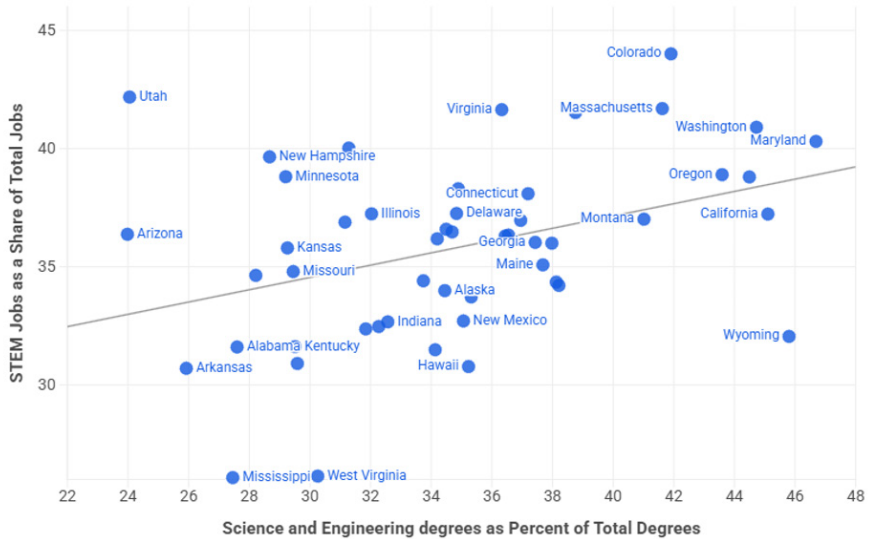
Given the divergence in factors considered in performance funding, is there a connection between one, some, or all of the factors Colorado considers and degrees/certificates of value, as represented by scientific and engineering degrees?

Degrees of Value (Credentials of Value) and Jobs

Before looking at the connection between performance funding factors and degrees, the following figure shows the correlation between the percentage of degrees awarded for science and engineering and the percentage of STEM jobs per total employment. Unsurprisingly, the state is high on both science and engineering degrees as a percent of total and STEM jobs as a percent of total employment. Colorado has a long tradition of being a technologically capable population with a workforce able to compete with any state in the country in science, technology, engineering, and math. The simple linear regression correlation of the following figure is given in Appendix B.

FIGURE 25

Correlation Between Science and Engineering Degrees as a Share of Total and STEM Jobs as a Share of Total Employment



WHAT IF COLORADO'S FUNDING MODEL PLACED SIGNIFICANTLY MORE WEIGHT ON CREDENTIALS OF VALUE?

Colorado's current funding formula does not consider credentials of value connected to the state's labor market. Instead, as noted at the outset of this report, the current funding model has only three weighted payment thresholds across eight different performance funding measurements that, together, deliver funding to institutions across the state.

This section explores CSI's empirical outcomes for Colorado graduates earning attainment credentials linked to: High ROI; high-need, high-demand in the labor market; and their associated supply and demand workforce gaps.

CSI evaluates the top ROI focus areas for four-year degrees and short-term credentials (one to two years) in Colorado, as well as the projected workforce needs for these fields. Using these factors, CSI estimates: Gaps in employer demand and the supply of graduate talent, labor productivity, and economic mobility.

Findings suggest that if the state centered its outcome-based funding formula to strategically include credentials of value, Colorado's institutions could set the national stage in terms of bridging workforce gaps and bolstering graduates' economic mobility.

Labor Market and Economic Mobility

Credentials of value, which refer to any post-secondary credentials, including degrees, certificates, and certifications, that provide learners with the skills and knowledge necessary to secure strong career pathways, high-paying jobs, and economic prosperity.

They are essential to help meet any state's workforce demands.

As such, in recent years, credential production and stackable credential pathways have been top-of-mind at the Colorado Department of Higher Education (CDHE), including through the passage of SB 22-192. This 2022 legislation provided the CDHE funding to work with other government agencies, stakeholders, K-12 educators, and higher education institutions to develop 10 stackable credential pathways in high-need, high-demand industries by the end of 2025.

The problem with this legislation is that **some of these proposed high-need pathways, such as behavioral health and education, typically do not provide wages that meet the minimum earnings threshold to be able to live in Colorado.**[ix]

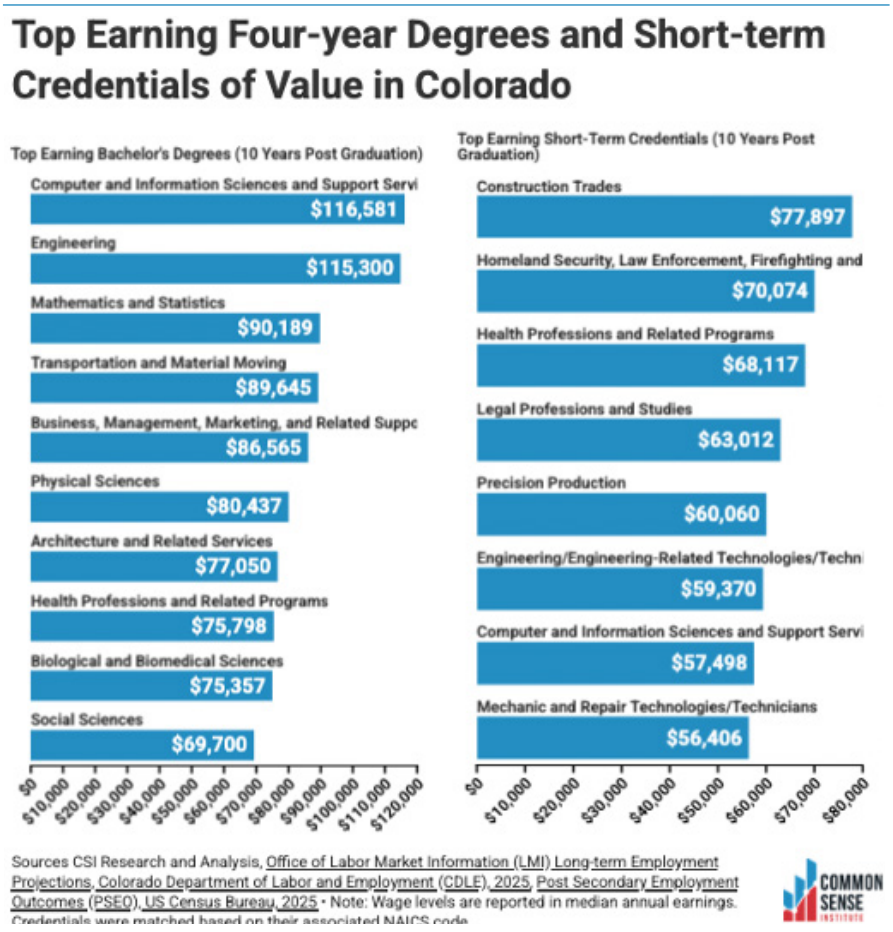
While graduates' ability to secure a job in a high-demand, high-growth sector in the state should be considered when institutions expand credential programs, other factors, like income, also must be considered.

Why? Because in 2023, 50% of all bachelor's degree graduates in Colorado left their campuses facing debt. Average debt was $25,200 per student, with 9% of graduates accruing debt greater than $40,000.[x] Compounding the debt issue is the fact that Colorado is currently the 19th most expensive state to live in in the United States.[xi] A high and growing cost of living means a robust ROI in higher education fields of study is necessary to attract and retain learners to the state. Because of this need, CSI considered both financial returns to the worker and workforce demand in its analysis.

Figure 26 reports data on the highest ROI four-year degree majors and short-term credentials in Colorado. These findings are based on 10-year median earnings post-graduation. Most of these credentials are associated with STEM.[1] These fields are also linked to the high-growth occupations in Colorado between 2023 and 2033. **Seven of the top 10 projected employment gains in the state by occupation are associated with the credentials listed in Figure 26.** Table 3 lists these occupations and their associated expected growth rates.

Based on total percentage change of expected employment, computer and information sciences and support services are projected to see the highest spike in occupational growth **out of any occupation group** between 2023 and 2033, rising by more than 28% and projecting **131,650 annual job openings in the state.** These occupations are also associated with the highest

FIGURE 26



[1] Due to lack of long-term data on legal professions and studies, that four-year degree is not included in CSI's analysis. Data shows a high median earnings threshold for this discipline, however, that estimated at $60,568 one year post-graduation.

TABLE 3

Credential of Value Title	Associated Labor Market Occupation Title	Associated SOC 2-digit Occupation Title	Employer Demand: Total Percent Change: 2023-2033 (%)
Computer and Information Sciences and Support Services	Computer and Mathematical	15	+28.3%
Health Professions and Related Programs	Healthcare Support Services	31	+25.5%
Construction Trades	Construction and Extraction	47	+22.4%
Legal Professions and Studies	Legal	23	+21.9%
Physical Sciences; Social Sciences; Biological and Biomedical Sciences	Life, Physical, and Social Science	19	+20.8%
Engineering; Engineering Related Technologies; Architecture and Related Services	Architecture and Engineering	13	+17.9%
Business, Business-related Management, Marketing, and Support Services	Business and Financial Operations	17	+17.6%

earnings for any four-year degree earner. Healthcare professions and related programs are associated with the second highest growth in the state during this period, increasing by more than a quarter of their current level. The healthcare support services sector, taken together with healthcare practitioners and technical occupations, is expected to grow by **163,410 job openings** between 2023 and 2033. Construction trades jobs, which are linked to the highest ROI for one- to two-year short-term credentials in Colorado, are expected to grow by roughly 22%, or an estimated **198,700 openings** between 2023 and 2033.[xii]

Table 4 offers the count of graduates who completed a credential of value within the projected high-growth, high ROI fields of study reported in Table 3, disaggregated by Colorado's IHEs. The data findings include graduation counts across *all* levels of educational attainment, from short-term certificates (less than one year) to doctoral and professional degrees. The results provide insight into how effectively individual institutions are contributing to the development of talent aligned with Colorado's labor market demands and value to both graduates and the state's economy.

Historically, Colorado's institutions of higher education have demonstrated relative efficiency in aligning academic programs with the state's evolving workforce demands in some high ROI fields of study. This outcome is particularly evident in fields such as health professions and related programs, which accounted for **105,050** graduates between 2001 and 2021. Among these occupations, the University of Colorado Denver and Front Range Community College accounted for the largest share of graduates, with 14,887 and 14,444, respectively. Academic programs in business, management, marketing, and related support services yielded **93,167** graduates over the same time frame. The University of Colorado Boulder and

Colorado State University led in business-related degree completions, producing 15,644 and 15,449 graduates, respectively.

The data also reveal areas where Colorado's higher education institutions could improve alignment between program offerings and high-value credentials tied to labor market demand. Notably, gaps exist in fields such as construction trades; legal professions and studies; physical sciences; social sciences; and biological and biomedical sciences. For example, according to Post-Secondary Employment Outcomes (PSEO) Census data, **only seven out of the state's 32 higher education institutions offered programs in legal professions and studies between 2001 and 2021.** These programs produced only 4,675 graduates statewide. The University of Colorado Boulder accounted for a significant portion of these graduates, contributing 2,714, or more than half of the total.

At the same time, completion in construction trades has been limited. Between 2001 and 2021, **only 11** of Colorado's higher education institutions offered programs in this field, collectively producing just 11,432 graduates over the course of two decades. As mentioned above, this field is linked to the highest ROI for short-term credentials in the state. This modest output underscores a significant gap in meeting the state's demand for skilled tradespeople, despite persistent labor shortages and strong job growth projections.

The limited institutional presence in certain high-ROI, high-need, and high-growth areas suggests opportunities for strategic program expansion to better support Colorado's evolving labor market.

TABLE 4

Count of Graduates in High-demand, High-paying Fields of Study by IHE										
Institution	Computer and Information Sciences and Support Services	Health Professions and Related Programs	Construction Trades	Legal Professions and Studies	Business, Business-related Management, Marketing, and Support Services	Physical Sciences; Social Sciences; Biological and Biomedical Sciences	Engineering; Engineering Related Technologies; Architecture and Related Services	Total Count of Graduates with High Value Degrees/ Certificates	Total Count of Certificates/ Degrees Awarded by Institution	Pctg of Total Graduates with Credentials of Value
Adams State University	NA	851	NA	NA	1,357	692	NA	2,900	14,748	20%
Aims Community College	31	5,210	93	NA	1,165	NA	545	7,044	38,354	18%
Arapahoe Community College	1,377	6,125	95	849	1,011	NA	1,513	10,970	28,219	39%
Colorado Mesa University	326	3,659	517	NA	3,322	1,518	426	9,768	27,010	36%
Colorado Mountain College	378	4,235	NA	NA	1,935	NA	201	6,749	29,986	23%

Institution	Computer and Information Sciences and Support Services	Health Professions and Related Programs	Construction Trades	Legal Professions and Studies	Business, Business-related Management, Marketing, and Support Services	Physical Sciences; Social Sciences; Biological and Biomedical Sciences	Engineering; Engineering Related Technologies; Architecture and Related Services	Total Count of Graduates with High Value Degrees/ Certificates	Total Count of Certificates/ Degrees Awarded by Institution	Pctg of Total Graduates with Credentials of Value
Colorado Northwestern Community College	NA	1,232	NA	55	221	NA	50	1,558	4,954	31%
Colorado School of Mines	867	NA	NA	NA	NA	1,434	12,304	14,605	23,698	62%
Colorado State University	2,532	1,465	NA	NA	15,449	13,251	7,251	39,948	137,311	29%
Colorado State University - Pueblo	694	1,593	392	NA	2,113	2,292	797	7,881	17,992	44%
Community College of Aurora	419	1,151	NA	237	1,380	NA	91	3,278	18,801	17%
Community College of Denver	396	4,518	NA	238	667	NA	194	6,013	22,159	27%
Emily Griffith Technical College	94	2,210	7,680	NA	171	NA	38	10,193	NA	NA
Fort Lewis College	219	320	NA	NA	4,496	2,102	62	7,199	14,418	50%
Front Range Community College	1,625	14,444	104	203	4,428	231	1,332	22,367	79,507	28%
Lamar Community College	144	743	103	NA	136	NA	NA	1,126	4,755	24%
Metropolitan State University of Denver	687	5,114	NA	NA	10,136	4,794	1,022	21,753	61,507	35%
Morgan Community College	63	2,062	NA	NA	153	NA	NA	2,278	8,681	26%
Northeastern Junior College	NA	785	NA	NA	370	NA	53	1,208	10,732	11%
Otero Junior College	118	1,407	NA	NA	259	NA	NA	1,784	10,355	17%
Pickens Technical College	61	869	65	NA	53	NA	128	1,176	NA	NA

Institution	Computer and Information Sciences and Support Services	Health Professions and Related Programs	Construction Trades	Legal Professions and Studies	Business, Business-related Management, Marketing, and Support Services	Physical Sciences; Social Sciences; Biological and Biomedical Sciences	Engineering; Engineering Related Technologies; Architecture and Related Services	Total Count of Graduates with High Value Degrees/ Certificates	Total Count of Certificates/ Degrees Awarded by Institution	Pctg of Total Graduates with Credentials of Value
Pikes Peak Community College	807	6,260	106	379	1,069	NA	956	9,577	51,878	18%
Pueblo Community College	819	6,855	NA	NA	1,317	NA	223	9,214	35,780	26%
Red Rocks Community College	459	6,081	1,652	NA	2,116	NA	1,956	12,264	38,657	32%
Technical College of the Rockies	NA	424	NA	NA	NA	NA	28	452	NA	
Trinidad State Junior College	106	2,106	625	NA	297	NA	517	3,651	13870	26%
University of Colorado Boulder	3,099	1,306	NA	2,714	15,664	22,364	13,953	59,100	161,588	37%
University of Colorado Colorado Springs	953	3,422	NA	NA	5,640	3,893	2,042	15,950	40,713	39%
University of Colorado Denver	1,438	14,887	NA	NA	12,676	6,601		35,602	92,064	39%
University of Northern Colorado	NA	5,716	NA	NA	3,937	4,252	158	14,063	57,869	24%
Western Colorado University	40	NA	NA	NA	1,629	1,352	NA	3,021	10,223	30%

Another view of the data is the share of overall credentials for the identified areas awarded by the institutions in the previous table. The following figure shows that comparison based upon the National Center for Education Statistics' Integrated Postsecondary Education Data System.[xiii]

The top five institutions with the highest share of degrees/certificates awarded in these valuable areas from 2001-2021 comprised of (share of degrees in parentheses):

- Colorado School of Mines (62%)
- Fort Lewis (50%)
- Colorado State University, Pueblo (44%)
- Arapahoe Community College (39%)
- University of Colorado, Colorado Springs (39%).

On the other end of the spectrum, the lowest five institutions for degrees/certificates awarded in these areas included:

- Community College of Denver (31%)
- Northeastern Junior College (2%)
- University of Northern Colorado (26%)
- Western Colorado University (24%)
- Adams State University (14%).

TABLE 5

Count of Certificates in High-demand, High-paying Fields of Study by IHE									
Institution Name	Computer and Information Sciences and Support Services	Health Professions and Related Programs	Construction Trades	Legal Professions and Studies	Business Management Marketing and Related Support Services	Physical Sciences	Engineering	Grand total	Share of Degrees/ Certificates
Adams State University	NA	14	NA	NA	115	7		985	13.8
Aims Community College	39	549	51	NA	44	NA	44	1890	38.5
Arapahoe Community College	172	538	12	20	75	NA	21	1763	47.5
Colorado Mesa University	55	434	75	NA	309	26	64	2113	45.6
Colorado Mountain College	63	378	NA	16	207	NA	39	1428	49.2
Colorado Northwestern Community College	NA	62	NA	NA	4	NA	NA	210	31.4
Colorado School of Mines	299	NA	NA	NA	6	87	1423	1979	91.7
Colorado State University-Fort Collins	343	109	NA	NA	1148	163	935	7794	34.6
Colorado State University Pueblo	45	240	NA	NA	132	2	38	860	53.1
Community College of Aurora	37	152	18	17	94	NA	NA	1015	31.3
Community College of Denver	27	294	NA	34	67	NA	17	1406	31.2

Institution Name	Computer and Information Sciences and Support Services	Health Professions and Related Programs	Construction Trades	Legal Professions and Studies	Business Management Marketing and Related Support Services	Physical Sciences	Engineering	Grand total	Share of Degrees/ Certificates
Emily Griffith Technical College	21	204	106	NA	5	NA	22	787	45.5
Fort Lewis College	12	41	NA	NA	105	27	31	653	33.1
Front Range Community College	261	1014	140	72	345	NA	182	4942	40.8
Lamar Community College	NA	50	10	NA	6	NA	NA	201	32.8
Metropolitan State University of Denver	150	220	NA	NA	621	36	137	3268	35.6
Morgan Community College	0	169	NA	NA	34	NA	2	325	63.1
Northeastern Junior College	NA	69	NA	NA	56	NA	28	520	29.4
Otero College	NA	140	NA	NA	10	NA	NA	387	38.8
Pickens Technical College	NA	152	32	NA	38	NA	42	621	42.5
Pikes Peak State College	131	828	11	30	149	NA	138	3180	40.5
Pueblo Community College	163	726	11	NA	275	NA	NA	2375	49.5
Red Rocks Community College	44	402	38	NA	251	NA	80	2071	39.4
Technical College of the Rockies	NA	118	NA	NA	NA	NA	18	300	45.3
Trinidad State College	NA	193	123	NA	12	NA	6	716	46.6
University of Colorado Boulder	743	111	NA	192	1712	395	1788	10241	48.2
University of Colorado Colorado Springs	127	282	NA	NA	486	14	169	2708	39.8
University of Colorado Denver/ Anschutz Medical Campus	272	1482	NA	NA	933	30	284	5678	52.9
University of Northern Colorado	0	316	NA	NA	304	46	10	2653	25.5
Western Colorado University	21	2	NA	NA	106	13		589	24.1

Credentials of Value Could Boost Enrollment, in Theory

Higher education is currently in a period of volatility. According to Fitch Ratings projections, ongoing enrollment challenges will continue to drive financial strain. By scaling up credential of value initiatives, Colorado's higher education institutions could mitigate financial pressure while advancing student and state-level economic outcomes.

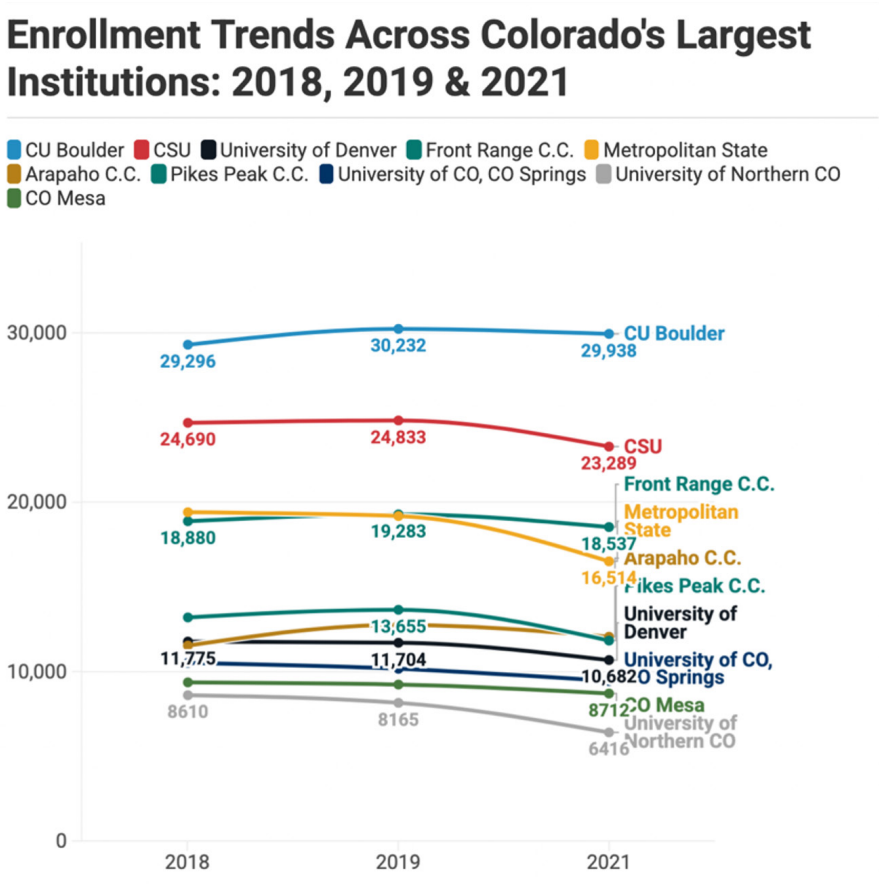
Not only could credentials of value performance outcomes support the talent pipeline and workforce in Colorado, but they could also **help address current concerns about prolonged downturns in college enrollment.**[xiv] According to the Colorado Legislative Council's enrollment forecast, enrollment growth across the state's institutions is expected to **slow from 3.6% growth in 2023-24 to 3.4% in 2024-25 to 1.8% 2025-26.**[xv]

Figure 27 displays the most recently available enrollment trends across the largest 10 institutions of higher education in Colorado. In general, many institutions experienced slight upticks in the level of learners between 2018 and 2019, followed by a more significant downtick between 2019 and 2021.

Assuming rational theory, when the time and financial costs of obtaining a postsecondary credential outweigh its perceived labor market value, potential learners are not incentivized to enroll. Declining enrollment and credential completion present significant risks, particularly at a time when sustained productivity is essential to maintain U.S. global competitiveness. Higher education plays a critical role in workforce development, but without sufficient investment in competitive, outcomes-driven programs, long-term labor market stability remains uncertain.

Expanding access to high-value credential programs, especially short-term, high-return options, could incentivize greater participation among Colorado students. **By prioritizing such pathways, the state has the potential to emerge as a national leader in undergraduate outcomes and labor market alignment.**

FIGURE 27



Sources: Colorado Department of Higher Education (CDHE), College Simply, 2024. • Notes: This data reports the most recent data available as of 2025. It is assumed there are impacts from the COVID-19 pandemic partially affecting these outcomes. Because of this, the year 2020 was taken out of the graph.

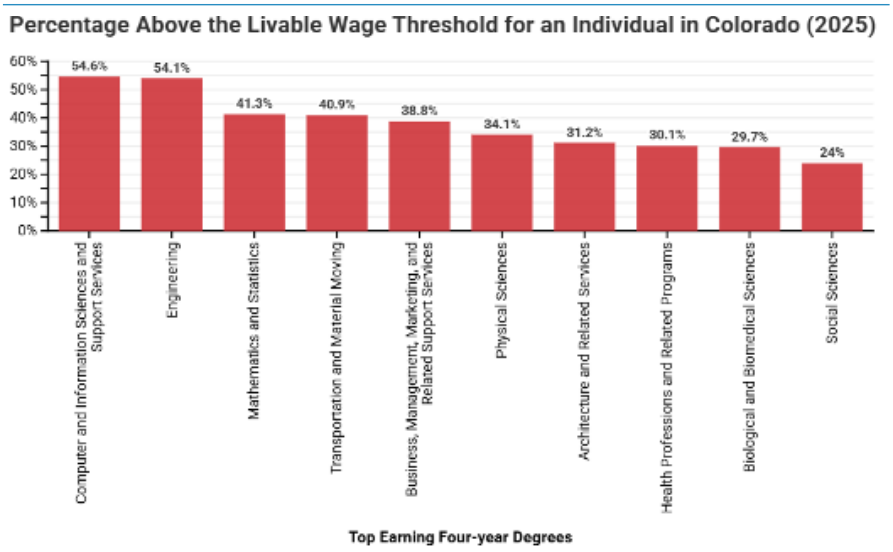
How Coloradans Can Earn a More Than a Livable Wage through Higher Education

The Massachusetts Institute of Technology (MIT) Livable Wage threshold was estimated to be $52,981in 2025.[xvi] This amount represents the lowest level a Coloradan must earn to sustain oneself based on typical regional expenses such as food, childcare, and housing.

The wage estimates in Figures 28 and 29 show how much more top earning four-year and short-term credentials earn above the livable wage. As Figure 28 shows, computer and information sciences and support services bachelor's degree earners have the highest median wage post-graduation at **54%** above the livable wage threshold. This category is followed by engineering degree holders (**54.1%** above the livable wage threshold), mathematics and statistics graduates (**41.3%** above the threshold), and transportation and material moving graduates (**40.9%** above the threshold).

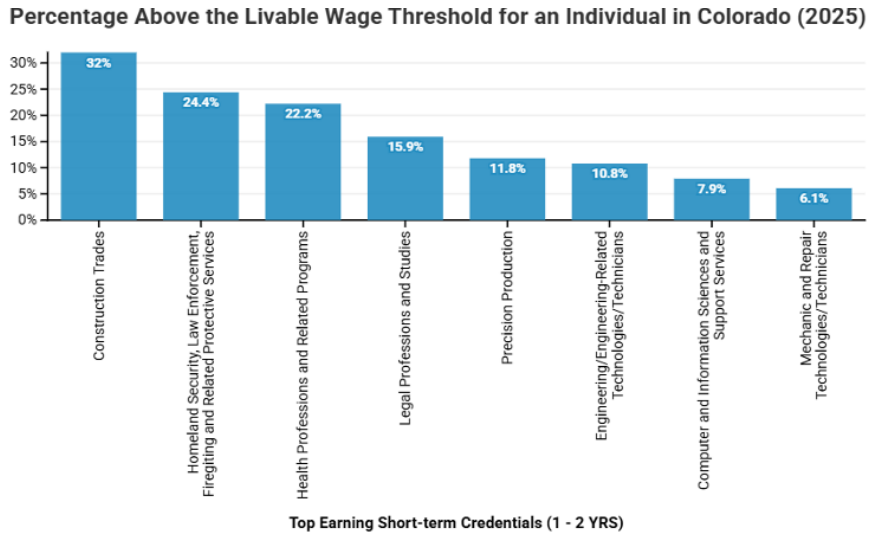
In terms of shorter-term credential earners' wages, construction trades far outpace other categories, landing at **32%** above the livable wage threshold post-completion. This sector is followed by homeland security, law enforcement, firefighting, and related protective services credentials, health professions and related programs completers, and legal professions and studies who, as Figure 29 shows, earn **24.4%, 22.2%,** and nearly **15.9%** above Colorado's livable wage threshold, respectively.

FIGURE 28



Sources: CSI Research and Analysis, Post-Secondary Employment Outcomes, MIT Livable Wage Calculator, 2025

FIGURE 29 [xvii, xviii]



Sources: CSI Research and Analysis, Post-secondary Employment Outcomes Explorer (PSEO), MIT Livable Wage Calculator, 2025

HOW WOULD FUNDING SHIFT BETWEEN INSTITUTIONS IF THE FUNDING FORMULA CONSIDERED OTHER FACTORS

As noted earlier, the current funding formula has virtually no connection with outcomes and is too slow to provide a material incentive for action. Acknowledging that, how would funding shift among institutions if the state opted for:

- **Scenario 1:** A 100% funding allocation towards credentials with no guaranteed funding base of the prior year's funding amount.
- **Scenario 2:** A 100% funding allocation towards credentials with a guaranteed funding base of the prior year's funding amount.
- **Scenario 3:** A 100% funding allocation towards credentials of value with no three- and four-year lags and no guaranteed prior year funding base.
- **Scenario 4:** A 100% funding allocation towards credentials of value with no three- and four-year lags and a guaranteed prior year funding base.
- **Scenario 5:** A 50% weight towards credentials of value and a 50% weight towards earnings outcomes with no guaranteed prior year funding base.
- **Scenario 6:** A 50% weight towards credentials of value and a 50% weight towards earnings outcomes with a guaranteed prior year funding base.

Scenario 1: 100% Funding Allocation Towards Credentials with No Base

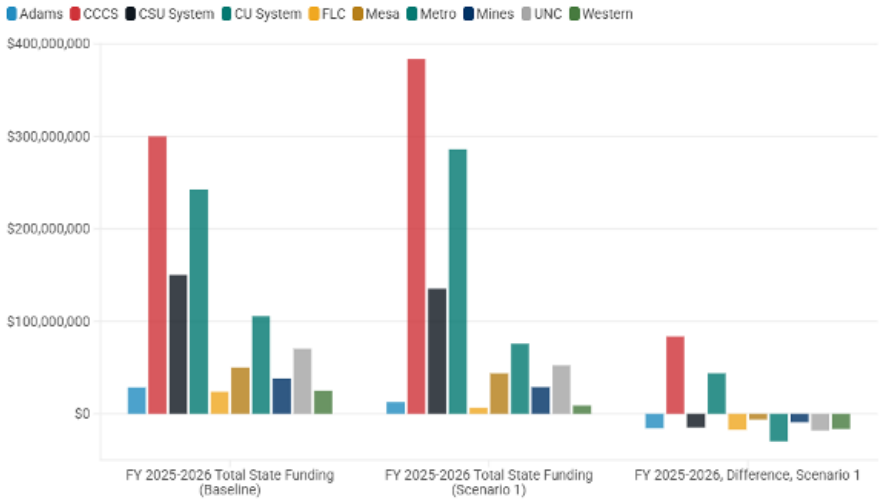
The slow-moving nature of the funding formula is readily transparent when comparing the status quo with funding options that place greater weight on career-oriented results and/or allow for funding to respond to performance quicker. For instance, the following figure is the shift in state funding that would occur if the state opted to fund institutions based solely on credentials. In this scenario, Colorado's Community College (CCC) system and the University of Colorado (UC) system would see the largest increases in funding, rising by approximately $84 million and $44 million, respectively, relative to their FY 2025-2026 baseline funding. On the other end of the spectrum, Denver Metro, Fort Lewis, and Western would see their funding drop by approximately $30 million, $17 million, and $16 million, respectively. From this perspective, CCC and CU are subsidizing every other institution.

FIGURE 30

Scenario 1: 100% Credentials Funding Allocation with No 3/4 Year Lag

The left pane shows the baseline funding for each institution. The middle pane shows funding if 100% of funding was allocated on credentials with no lag. The right pane shows the change in funding.

If credentials was the deciding factor, Community Colleges of Colorado and the University of Colorado system would see an increase in funding of approximately $84 million and $44 million, respectively. In contrast, Denver Metro (-$30 million), FLC (-$17 million), and Western (-$16 million) would see the largest drop in funding.



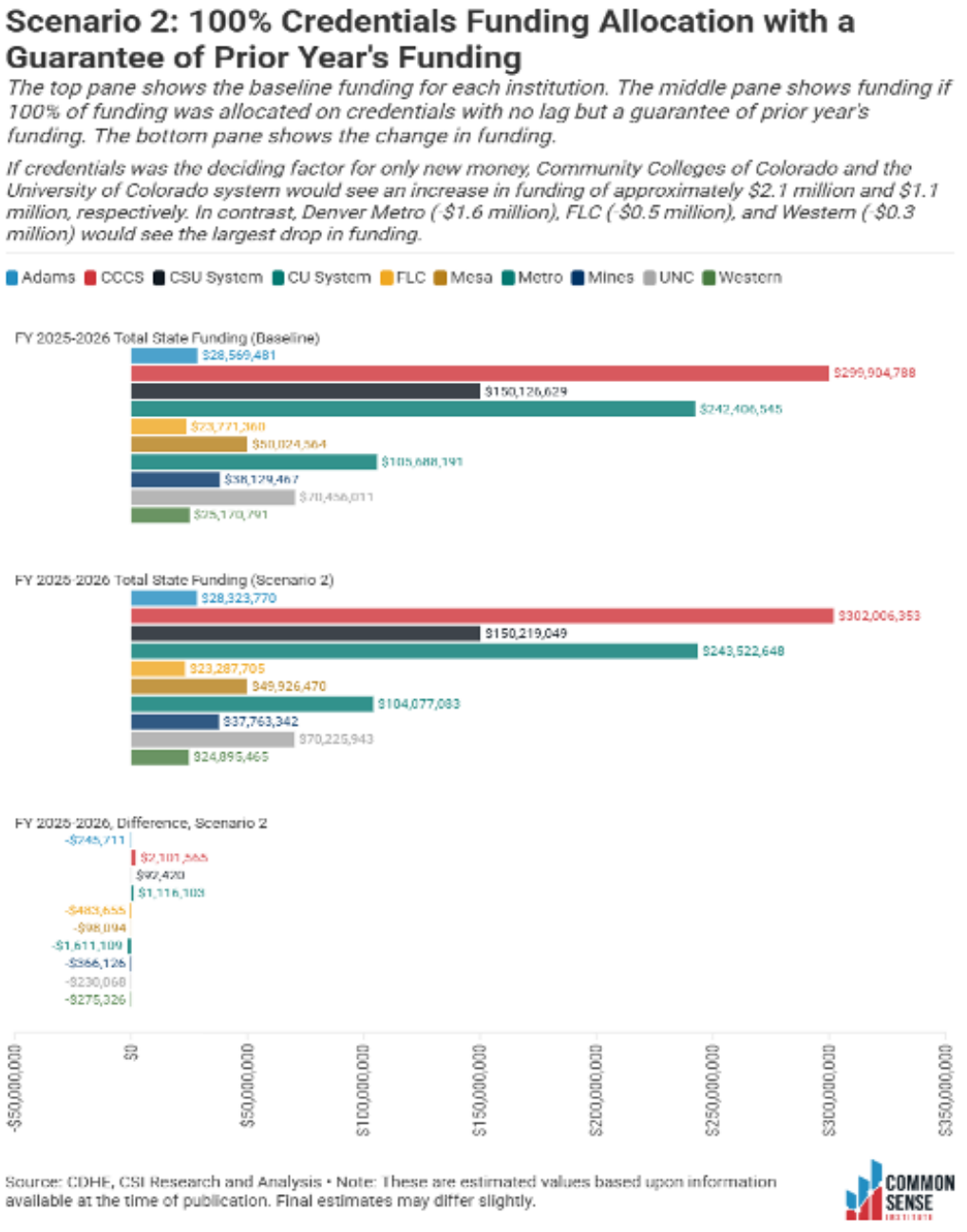
Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.

Scenario 2: 100% Funding Allocation Towards Credentials with Guaranteed Funding Base

Scenario 1 looked at a 100% funding allocation towards credentials. What if only new funding were allocated towards credentials, with each institution guaranteed 100% of their prior year funding? The following figure shows that view.

Overall, in this moderate funding shift scenario, rather than large shifts among institutions due to years of some institutions subsidizing certain other institutions, the funding shifts are moderate. The largest shifts with increases in funding from new money include CCC and UC, up $2.1 million and $1.1 million, respectively. In contrast, Denver Metro, FLC, and Western see funding drops of $1.6 million, $0.5 million, and $0.3 million, respectively.

FIGURE 31



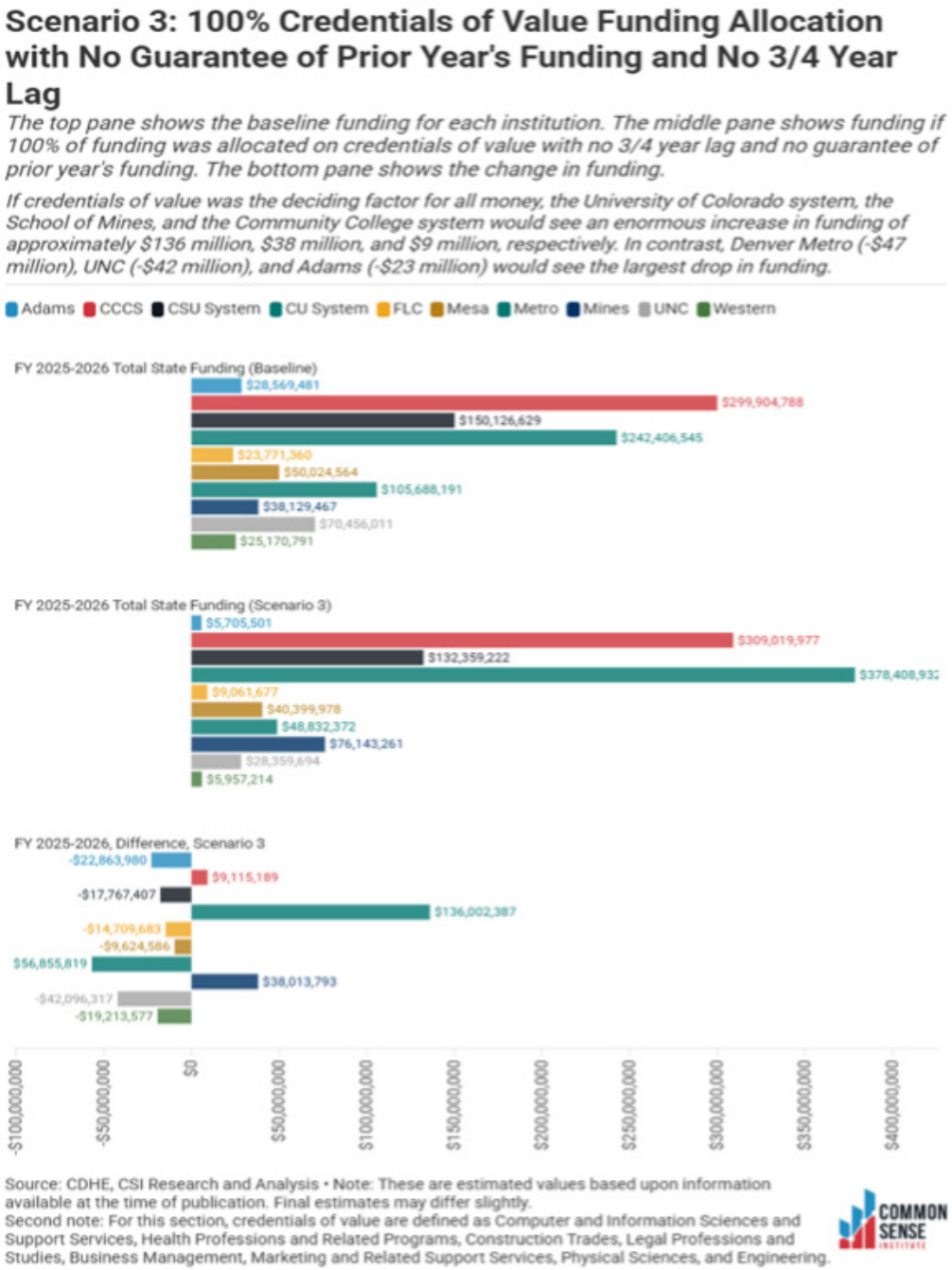
Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.

Scenario 3: 100% Funding Allocation Towards Credentials of Value with No Guaranteed Funding Base and No 3/4 Year Lag

Scenarios 1 and 2 looked at the shift in funding if credentials were the sole deciding factor in funding and whether or not institutions were guaranteed prior year funding. Scenario 3 looks at funding assuming 100% of the funding allocation was based on credentials of value, with no guaranteed funding base and no 3/4 lag.

Overall, if credentials of value were the deciding factor for all money, the University of Colorado system and the School of Mines would see an enormous increase in funding of approximately $136 million and $38 million, respectively. In contrast, Denver Metro (-$47 million), UNC (-$42 million), and Adams (-$23 million) would see the largest drop in funding.

FIGURE 32



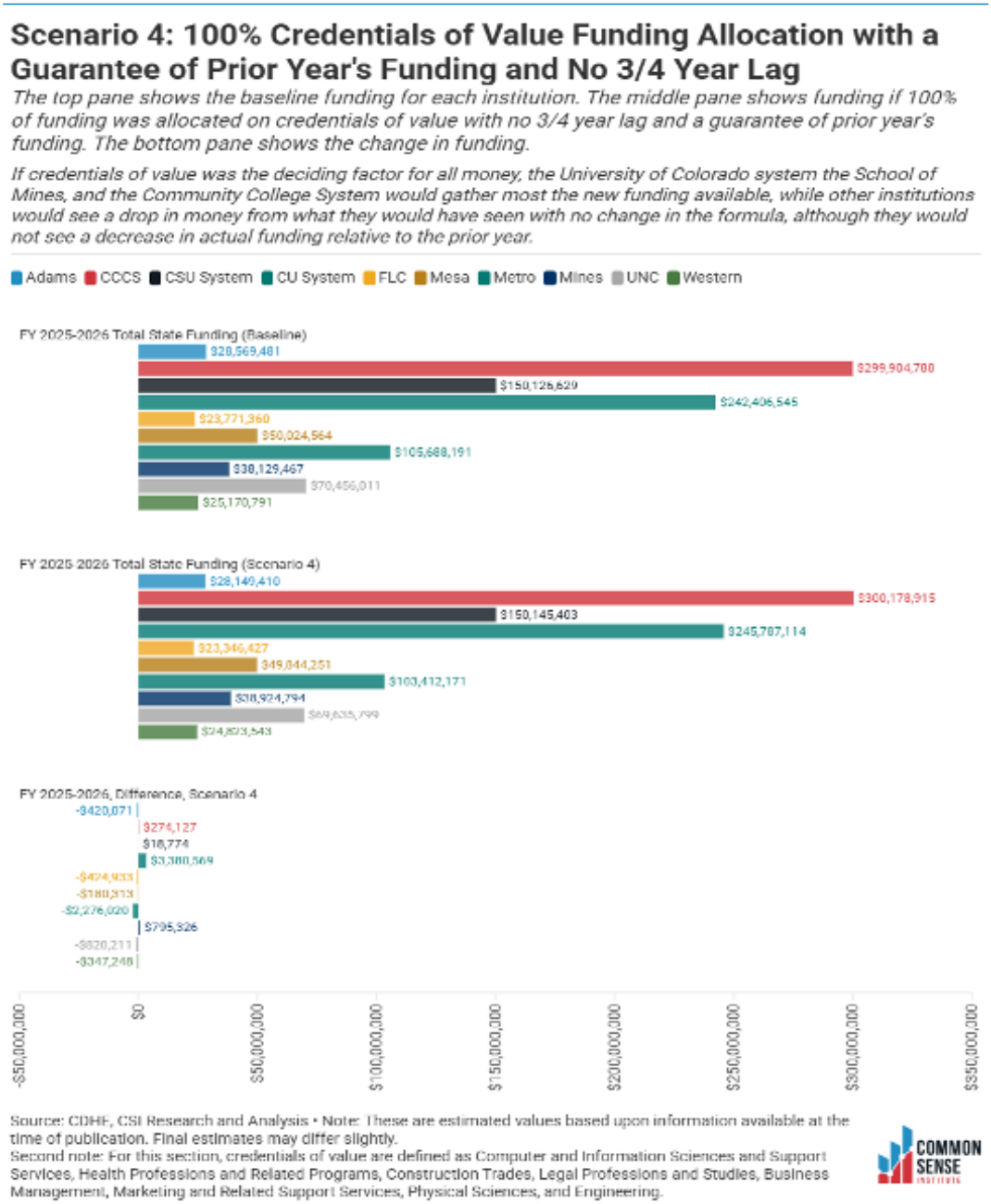
Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.
Second note: For this section, credentials of value are defined as Computer and Information Sciences and Support Services, Health Professions and Related Programs, Construction Trades, Legal Professions and Studies, Business Management, Marketing and Related Support Services, Physical Sciences, and Engineering.

Scenario 4: 100% Funding Allocation Towards Credentials of Value with Guaranteed Prior Year Funding Base and No 3/4 Year Lag

Scenario 4 is the same as Scenario 3, with the exception that institutions are guaranteed their prior year's funding amount.

Overall, in this scenario, funding would shift from the subsidized to the historical subsidizer, with four institutions—the University of Colorado system (+$3.4 million), School of Mines (+$0.8 million), CCCS (+$0.3 million), and the CSU system (+$19,000).

FIGURE 33



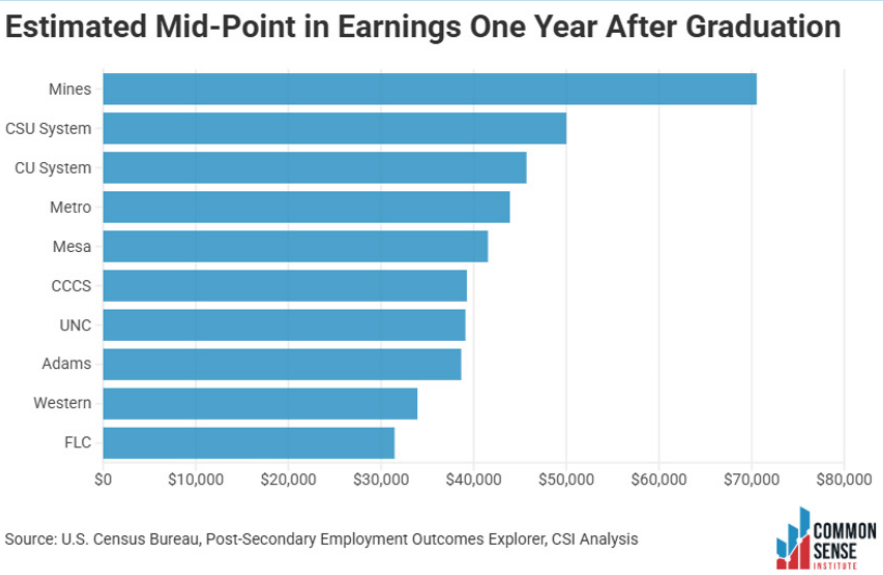
Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.
Second note: For this section, credentials of value are defined as Computer and Information Sciences and Support Services, Health Professions and Related Programs, Construction Trades, Legal Professions and Studies, Business Management, Marketing and Related Support Services, Physical Sciences, and Engineering.

Scenario 5: A 50% Weight Towards Credentials of Value and a 50% Weight Towards Earnings Outcomes with No Guaranteed Prior Year Funding Base

Scenario 5 continues with the credentials of value funding assumption and adds a 50% towards job earnings results. Although a gold standard method for capturing earnings post-graduation for students in the state is unavailable, for this exercise, CSI used the earnings outcomes as reported by the Post-Secondary Employment Outcomes Explorer provided by the U.S. Census Bureau.[xix] Average earnings were calculated for each institution for the most recent cohort using the bachelor's degree recipients as the measure, with the exception of Colorado's community colleges, in which case CSI used the earnings of associate's degree recipients. The earnings estimate employed the p50 (middle point) estimate.

Before presenting the budget impact results, the following figure presents the assumed earnings outcomes. Of the 10 institutions, the School of Mines has the highest typical (50th percentile) earnings estimate one year after graduation, followed by the Colorado State University system and the University of Colorado system. On the other end, Fort Lewis, Western, and Adams have the lowest earning graduates.

FIGURE 34



Given the just-mentioned assumptions, the following figure looks at the shift in funding if it were allocated with a 50% weight on graduates' earnings post-graduation and 50% based on credentials of value.

Before looking at the results, a note on the weight allocations: For the 50% earnings share, each institution's mid-point earnings estimate was multiplied by the number of credentials awarded to get an estimate of total wages generated by that institution. From this estimate, each institution's share of the total estimate's wages was estimated and multiplied by the 50% weight.

Overall, when considering credentials of value and an institution's share of total wages generated in the economy, funding would shift significantly in the coming year, with three institutions seeing large increases: the University of Colorado (+$91 million), the School of Mines (+$35 million), and the Community College system (+$25 million).

On the other end of the spectrum, institutions that generally fail to produce significant wages in the economy relative to their current funding allocation include, among the other institutions: Metro (-$44 million), University of Northern Colorado (-$32 million), and Adams (-$20 million).

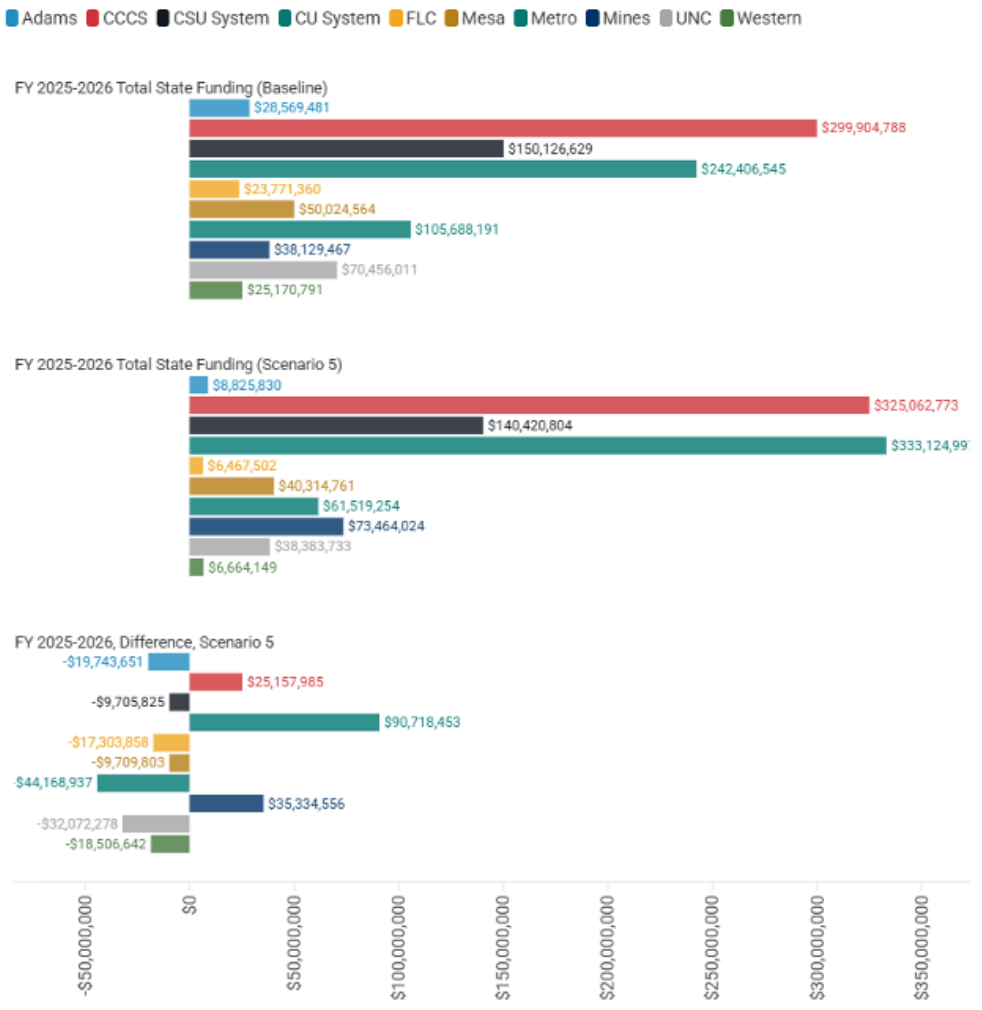
What the results of this Scenario 5 show is that some institutions' graduates are much better at generating wages than others. And remember, wages are either the first or second most important reason students attend college in the first place.

FIGURE 35

Scenario 5: 50% Weight Towards Credentials of Value and 50% Towards Job Placement with No Guarantee of Prior Year's Funding and No 3/4 Year Lag

The top pane shows the baseline funding for each institution. The middle pane shows funding if 50% of funding was allocated on credentials of value with no 3/4 year lag and no guarantee of prior year's funding and 50% was allocated based upon an institution's estimated share of total wages generated for the most recently available graduation year. The bottom pane shows the change in funding.

In this Scenario 5, three institutions see an enormous increase in funding due to their having graduated a large share of the "wage earners" in the economy-the University of Colorado system, the School of Mines, and the Community College system. On the other end, the institutions that see their funding allocations grow slower due to their lack of generating wages in the economy include Metro, UNC, and Adams.



Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.
Second note: For this section, credentials of value are defined as Computer and Information Sciences and Support Services, Health Professions and Related Programs, Construction Trades, Legal Professions and Studies, Business Management, Marketing and Related Support Services, Physical Sciences, and Engineering.

Scenario 6: A 50% Weight Towards Credentials of Value and a 50% Weight Towards Earnings Outcomes with a Guaranteed Prior Year Funding Base

Scenario 6 continues what Scenario 5 introduces and adds the caveat that an institution's prior year funding amount is guaranteed. This ensures that no institution experiences a decrease in funding.

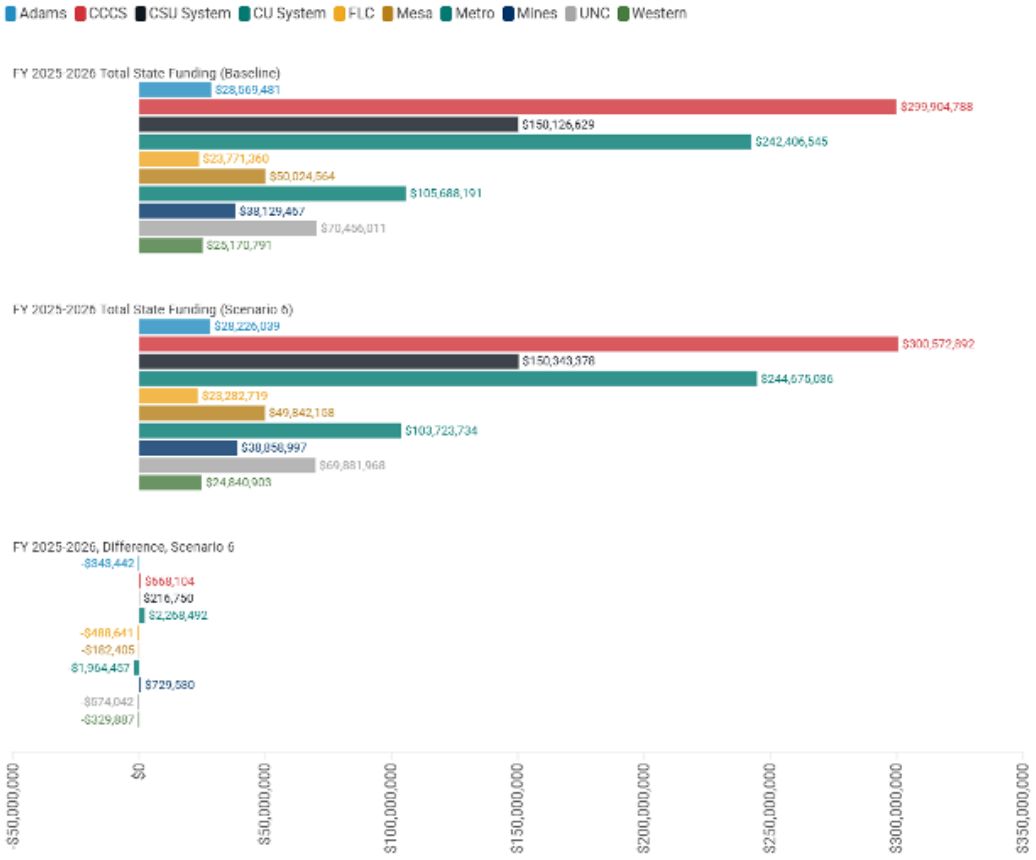
As one would expect, the shift among the institutions is less, with no institution seeing an actual decrease in funding from their 2025 baseline, but funding for some institutions growing faster than others.

FIGURE 36

Scenario 6: 50% Weight Towards Credentials of Value and 50% Towards Job Placement with a Guarantee of Prior Year's Funding and No 3/4 Year Lag

The top pane shows the baseline funding for each institution. The middle pane shows funding if 50% of funding was allocated on credentials of value with no 3/4 year lag and a guarantee of prior year's funding and 50% was allocated based upon an institution's estimated share of total wages generated for the most recently available graduation year. The bottom pane shows the change in funding.

In this Scenario 6, the institutions with an increase relative to their current baseline include the CU system, Mines, CCCS, and the CSU system. On the other end, the institutions that generally produce less wages from graduates with credentials of value include Mesa, Western, Adams, FLC, UNC, and Metro.



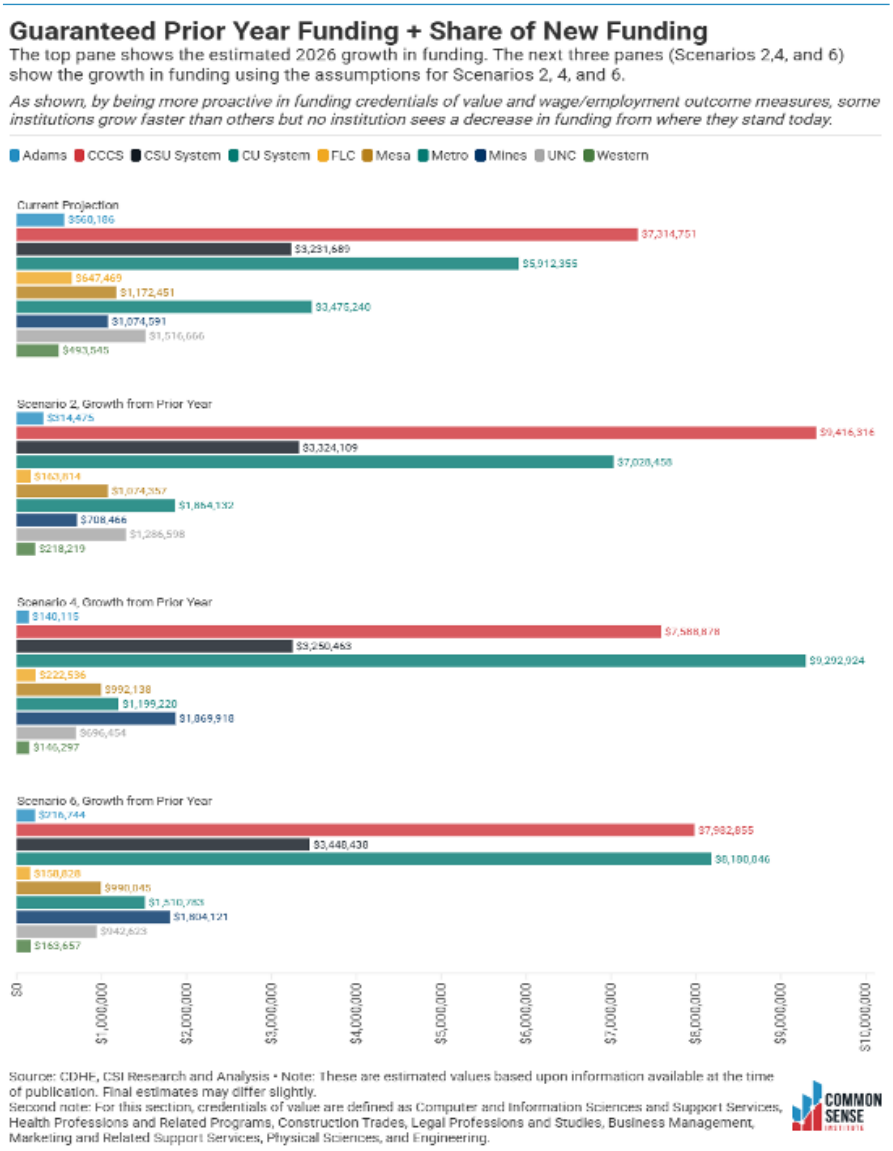
Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.
Second note: For this section, credentials of value are defined as Computer and Information Sciences and Support Services, Health Professions and Related Programs, Construction Trades, Legal Professions and Studies, Business Management, Marketing and Related Support Services, Physical Sciences, and Engineering.

The Scenarios with Guaranteed Baselines

Three of the scenarios guarantee baseline funding at the prior year's amount plus an institution's share of the growth in funding.

As shown, no institution sees a decrease in funding from their current 2025 baseline funding. The difference lies in how fast funding grows. For institutions that are producing the most impact on the economy—as measured by wages added to the economy, credentials of value, or simply credentials—they see faster growth in their funding.

FIGURE 37



Source: CDHE, CSI Research and Analysis • Note: These are estimated values based upon information available at the time of publication. Final estimates may differ slightly.
Second note: For this section, credentials of value are defined as Computer and Information Sciences and Support Services, Health Professions and Related Programs, Construction Trades, Legal Professions and Studies, Business Management, Marketing and Related Support Services, Physical Sciences, and Engineering.

CHECKING THE CONNECTION BETWEEN FUNDING FORMULA INCLUSION OF STEM-RELATED DEGREES AND AVERAGE JOB GROWTH

One way to inspect the connection between funding formulas and job growth is to empirically inspect whether states that include STEM-related incentives in their funding formula have higher average job growth. In the model result below, average job growth is defined as average year-over-year job growth by month from February 2021 through April 2025. The following regression results provide an estimate.

The regression uses information gathered on factors used across states that Colorado also uses. Overall, the estimate of relevance to this discussion is the "Coefficient" on Uses Credentials of Value STEM, which is estimated at 0.166 with a 90% confidence level. This indicates that when **a state adopts credentials of value in its higher education funding formula, it can expect 0.166 more percentage points in job growth.** When applying the 0.166 to Colorado in June 2025, the 0.166 would equate to 19,100 more jobs

in Colorado today than what occurred. This is surprisingly similar to the 20% scenario presented in the REMI results section below.

TABLE 6

Linear regression for Average Job Growth from 2/2021 to 5/2025					
Ln of Average Job Growth in CO	Coef.	Standard Error	t-value	p-value	Sig
Credential Production	-0.03	0.08	-0.32	0.75	
Underrepresented Minority	-0.00	0.10	-0.02	0.98	
Pell Eligible Students	-0.11	0.09	-1.20	0.24	
Retention Rate	-0.03	0.08	-0.31	0.76	
Resident Full Time Enrollment	-0.32	0.14	-2.38	0.02	**
Graduation Rate at 100%	0.19	0.11	1.72	0.09	*
Graduation Rate at 150%	-0.09	0.09	-1.02	0.32	
West	0.31	0.06	5.13	0	***
Uses Credentials of Value STEM	0.17	0.10	1.74	0.09	*
c.West##c.UsesCredValue-STEM	-0.22	0.15	-1.42	0.16	
Constant	0.90	0.06	19.88	0	***

Mean dependent var	0.94	SD dependent var	0.25
R-squared	0.36	# of observations	50
F-test	4.88	Prob > F	0
Akaike crit. (AIC)	1.30	Bayesian crit. (BIC)	22.33

*** p<.01, ** p<.05, * p<.1

HOW CREDENTIALS OF VALUE PRODUCTION AFFECT THE ECONOMY

This section[2] provides a detailed analysis of CSI's econometric results. Our methodology used publicly available government workforce and education data to project the economic impact of additional funding toward the credential production input variable in the funding model — assuming credential production only includes credentials that are of high ROI value in the workforce and fall into high-demand, high-growing sectors. Our methodology estimated the direct effect of high-demand/high ROI job increases across five scenarios associated with upticks in credentials of value production statewide.

By exploiting the average annual level of graduates in these fields and utilizing percentage thresholds as a proxy for growth in graduates, our findings suggest significant, positive economic impacts across all of our output variables. Specifically, results suggest significant increases in employment-enhancing productivity as opposed to employment-reducing productivity. Economic outcomes grew tremendously as the magnitude of the percentage thresholds increased.

[2] This study only examined top-earning, high workforce demanded four-year degrees and short-term credentials that took one to two years to complete. Thus, we can assume the economic impact findings are underestimated, and the magnitude of positive impacts would be far greater than the numbers reported here if we also took into account graduate and other degrees, along with certificates that take less than a year to finish.

REMI RESULTS

The economic impact of expanded credentials of value was modeled using two factors:

- Change in direct employment for sectors that would see a bump in productivity-enhancing labor; and
- Change in the labor productivity for impacted sectors. Labor productivity is assumed to be *labor-enhancing*, meaning more labor intensity, as opposed to labor replacing.
- The direct employment impact from the credentials of value boost occurs in Colorado.

We modeled 5%, 10%, 15%, and 20% increases in the level of graduates with credentials of value and found that a:

- 5% increase led to a 991 rise in direct employment
- 10% increase led to a 1,982 rise in direct employment
- 15% increase led to a 2,973 rise in direct employment
- 20% increase led to a 3,964 rise in direct employment

Regarding *labor enhancing labor productivity*, we found that a:

- 5% increase in credentials led to a 0.05% rise in direct labor enhancing labor productivity
- 10% increase led to a 0.1% rise in direct labor enhancing labor productivity
- 15% increase led to a 0.15% rise in direct labor enhancing labor productivity
- 20% increase led to a 0.20% rise in direct labor enhancing labor productivity

Scenario 1: 5% Increase

The results of the REMI model are presented in Table 7. Overall; the results suggest a 5% increase in graduates with credentials of value would lead to:

- 4,635 new jobs above the baseline job growth by 2035
- A $1.1 billion increase in nominal GDP by 2035
- A $2.0 billion increase in output by 2035
- A 6,108 increase in population by 2035
- A $767 million increase in personal income by 2035

TABLE 7

Economic Impact from a 5% Rise in Credentials of Value							
Year	Total Employment	Private Non-Farm Employment	Population	Gross Domestic Product	Output	Personal Income	Disposable Personal Income
2030	5,012	4,519	4,404	$1,841,021,606	$636,040,271	$545,382,785	$1,023,061,539,497
2035	4,635	4,103	6,197	$2,002,776,554	$764,426,555	$659,965,379	$1,122,953,632,029
2040	4,658	4,127	6,596	$2,306,612,949	$917,065,629	$793,747,080	$1,293,891,638,388

SCENARIO 2: 10% INCREASE

The results of the REMI model are presented in Table 8 below. Overall, the results suggest a 10% increase in graduates with credentials of value would lead to:

- 9,270 new jobs above the baseline job growth by 2035
- A $2.2 billion increase in nominal GDP by 2035
- A $4.0 billion increase in output by 2035
- A 12,396 increase in population by 2035
- A $1.5 billion increase in personal income by 2035

TABLE 8

Economic Impact from a 10% Rise in Credentials of Value							
Year	Total Employment	Private Non-Farm Employment	Population	Gross Domestic Product	Output	Personal Income	Disposable Personal Income
2030	10,024	9,037	8,813	$2,046,246,075	$3,682,242,773	$1,272,246,749	$1,090,912,893
2035	9,270	8,206	12,396	$2,246,025,543	$4,005,740,955	$1,529,049,997	$1,320,107,295
2040	9,319	8,256	13,195	$2,588,117,431	$4,613,776,546	$1,834,633,943	$1,587,940,973

SCENARIO 3: 15% INCREASE

The results of the REMI model are presented in Table 9. Overall; the results suggest a 15% increase in graduates with credentials of value would lead to:

- 13,906 new jobs above the baseline job growth by 2035
- A $3.4 billion increase in nominal GDP by 2035
- A $6.0 billion increase in output by 2035
- An 18,598 increase in population by 2035
- A $2.3 billion increase in personal income by 2035

TABLE 9

Economic Impact from a 10% Rise in Credentials of Value							
Year	Total Employment	Private Non-Farm Employment	Population	Gross Domestic Product	Output	Personal Income	Disposable Personal Income
2030	15,038	13,557	13,220	$3,069,927,441	$5,524,290,683	$1,909,157,166	$1,637,087,628
2035	13,906	12,310	18,598	$3,369,185,258	$6,008,840,074	$2,293,866,012	$1,980,419,171
2040	13,980	12,386	19,799	$3,882,510,168	$6,921,204,108	$2,752,538,299	$2,382,431,093

SCENARIO 4: 20% INCREASE

The results of the REMI model are presented in Table 10. Overall, the results suggest that a 20% increase in graduates with credentials of value would lead to:

- 18,542 new jobs above the baseline job growth by 2035
- A $4.5 billion increase in nominal GDP by 2035
- An $8.0 billion increase in output by 2035
- A 24,804 increase in population by 2035
- A $3.1 billion increase in personal income by 2035

TABLE 10

Economic Impact from a 10% Rise in Credentials of Value							
Year	Total Employment	Private Non-Farm Employment	Population	Gross Domestic Product	Output	Personal Income	Disposable Personal Income
2030	20,056	18,081	17,628	$4,094,497,103	$7,367,825,255	$2,547,125,761	$2,184,214,253
2035	18,542	16,413	24,804	$4,492,418,745	$8,012,046,085	$3,058,913,090	$2,640,935,167
2040	18,642	16,516	26,408	$5,177,062,776	$9,228,880,356	$3,670,815,209	$3,177,251,654

Our central findings regarding the importance of credentials of value are best represented in Table 10, or scenario 4. REMI results suggest strong growth relative to the economy's current state.

Assuming the scenario that boosts the level of graduates by 20% in the state, our estimates show this would lead to nearly **19,000 new jobs** in Colorado by 2035, spurred by a highly talented pipeline of graduates. This number is roughly the **same capacity as Madison Square Garden.**

Regarding population, if the state's funding formula appropriated 20% of its funding toward credentials of value, CSI's model estimates a population growth of **24,804** by 2035, **a number that exceeds Ball Arena's capacity by more than 3,000.**

Population growth projections are important measurements since previous research has shown this variable has strong correlations with economic growth.[xx] These estimated population increases would come at a critical time for Colorado: the State Demography Office (SDO) predicts a decline in statewide fertility rates, lower domestic in-migration, and 40,000 worker retirements by 2030.[xxi] These factors will have major repercussions for the state's labor market, which means population growth will be necessary for Colorado's economy to succeed in the long run.

RECOMMENDATIONS AND FURTHER RESEARCH

Recommendations

Based on CSI's findings, policymakers may want to consider:

- Increasing the incentive for institutions to produce credentials of value. The current formula is rigid in nature, and institutions do not lose money if they perform poorly compared to their peers.
- Prioritize targeted expansion of academic programs in underrepresented, high-demand, high ROI fields or direct students to private providers of this type of coursework in order to avoid duplication. This option could strengthen Colorado's talent pipeline and improve alignment between higher education outputs and labor market demands. While progress has been made in producing graduates in health professions and business-related disciplines, other sectors — such as construction trades, legal professions, physical sciences, social sciences, and biological and biomedical sciences — remain underserved.
- Introduce workforce-aligned incentives tied to program demand, regional labor needs, and credential ROI.

Further Research

The findings and recommendations of this paper lend themselves to further research on the differential impact that states' funding strategies are having on student outcomes and the economy overall. In this vein, further research that would be helpful to Colorado in advancing its higher education and economic development strategy includes—

- Create a higher education database for funding strategies across states and time, back to at least 2010, to better decipher the causal impact of funding incentives on the state's job market.
- Create a database of the weights states have placed on underrepresented and low-income students to decipher any potential causal impact between incentivizing institutions to target underrepresented and low-income students and their economic outcomes.
- Create a database of the growing importance of job placement in states' higher education funding formulas and the causal impact these weights are having on employment outcomes of students.

BOTTOM LINE

While funding for credential production to higher education institutions has spiked over the years in Colorado, data indicates credential generation has decreased marginally, suggesting no correlation between credential funding and credential generation.

Perhaps more importantly, the current funding formula does not adequately consider credentials of value in connection to the state's labor market and student ROI. By channeling more efforts and funding toward credentials of value production, institutions would have a more significant incentive to ramp up the types of attainment awards offered. CSI findings also suggest this investment would have a rippling effect on graduates' workforce readiness, economic mobility, and quality of life.

APPENDIX A

Top Return on Investment (ROI) Majors in Colorado - Four-year Degrees										
Top Earning Majors for Bachelor's Pathways	Associated Occupation (2 Digit NAICS Code)	Estimated Employment	Projected Annual Openings (2023-2033)	Estimated Median Earnings (10 years post-graduation) ($)	% Above Livable Wage Threshold (for an individual)	Average Annual Graduates with Skill Set (2019-2021)	Labor Market Talent Gap (Projected Annual Openings - Sverage Annual Graduates in Field between 2019 and 2021)	Share of Average Annual Graduates (2016-2020) Relative to Projected Annual Demand (2023-2033)	% who stay in Colorado and it's Workforce 10 Years After Graduation	Most Popular Specialized Industry of Employment (1 YR Post Grad) (2001-2020)
Engineering; Engineering, Engineering-Related Technologies	Architecture and Engineering	75,224	6,594	$136,321	61.10%	2,934	-3,660	44.50%	60%	Professional, Scientific, and Technical Services (35%) Manufacturing (23%)
Business, Management, Marketing, and Related Support Services	Business and Financial Operations	278,368	28,949	$86,565	38.80%	5,902	-23,047	20.40%	70%	Professional, Scientific, and Technical Services (17%) Finance and Insurance (16%)
Computer and Information Sciences and Support Services	Computer and Mathematical	139,873	13,165	$116,581	54.60%	1,542	-11,623	11.70%	67%	Professional, Scientific, and Technical Services (37%) Information (15%)
Mathematics and Statistics	Computer and Mathematical	139,873	13,165	$90,189	41.30%	419	-12,746	3.20%	60%	Educational Services (28%) Professional, Scientifics, and Technical Services (23%)
Health Professions and Related Programs	Healthcare Practitioners and Technical; Healthcare Suppor	266,604	32,823	$75,798	30.10%	2,210	-30,613	6.70%	69%	Health Care and Social Assistance (70%) Educational Services (10%)

Transportation and Material Moving	Transportation and Material Moving	220,712	34,228	$89,645	40.90%	100	-34,128	0.30%	68%	Transportation and Warehousing (38%) Information (13%)
Physical Sciences	Life, Physical, and Social Science	40,412	4,540	$80,437	34.10%	474	-4,066	10.40%	49%	Professional, Scientific, and Technical Services (22%) Educational Services (17%)
Architecture and Related Services	Architecture and Engineering	75,224	6,594	$77,050	31.20%	266	-6,328	4.00%	59%	Professional, Scientific, and Technical Services (49%) Construction (9%)
Biological and Biomedical Sciences	Life, Physical, and Social Science	40,412	4,540	$75,357	29.70%	2,452	-2,088	54.00%	54%	Educational Services (16%) (Health Care and Social Assistance (36%)
Social Sciences	Life, Physical, and Social Science	40,412	4,540	$69,700	24.00%	1,997	-2,543	44.00%	59%	Professional, Scientific, and Technical Services (15%) Educational Services (14%)

APPENDIX B

The model results are given in the following table. The model specifications structure is:

Structural equation model Number of obs = 50

Estimation method: ml

Log likelihood = -490.20771

(1) [credential]Institutional_effectiveness = 1

Standardized	Coefficient	std. err.	z	P>z
Structural				
credential				
Institutional_effectiveness	0.603	0.13	4.65	0
_cons	1.225	0.182	6.74	0
se_share				
credential	**0.307**	**0.184**	**1.67**	**0.094**
stem_jobs	**0.342**	**0.126**	**2.71**	**0.007**
Institutional_effectiveness	-0.42	0.225	-1.87	0.061
_cons	2.607	1.414	1.84	0.065
stem_jobs				
west	-0.002	0.19	-0.01	0.992
northeast	0.2	0.16	1.25	0.21
south	-0.296	0.169	-1.75	0.079
avg_job_growth	0.09	0.153	0.59	0.555
_cons	9.133	1.075	8.49	0
Measurement				
enrollment				
Institutional_effectiveness	0.159	0.168	0.95	0.343
_cons	0.253	0.143	1.76	0.078
underrepresented_all				
Institutional_effectiveness	0.599	0.137	4.36	0
_cons	0.923	0.163	5.66	0
efficiency				
Institutional_effectiveness	0.753	0.124	6.06	0
_cons	0.851	0.156	5.47	0

Structural equation model Number of obs = 50

Estimation method: ml

Log likelihood = -490.20771

(1) [credential]Institutional_effectiveness = 1

Standardized	Coefficient	std. err.	z	P>z
performance				
Institutional_effectiveness	0.262	0.171	1.53	0.126
_cons	0.46	0.148	3.12	0.002
var(e.credential)	0.637	0.156		
var(e.enrollment)	0.975	0.053		
var(e.underrepresented_all)	0.641	0.164		
var(e.efficiency)	0.433	0.187		
var(e.performance)	0.931	0.09		
var(e.se_share)	0.735	0.138		
var(e.stem_jobs)	0.828	0.093		
var(Institutional_effectiveness)	1	.		
cov(west,Institutional_effectiveness)	-0.076	0.158	-0.48	0.629
cov(northeast,Institutional_effectiveness)	-0.416	0.134	-3.1	0.002
cov(south,Institutional_effectiveness)	0.388	0.14	2.77	0.006
cov(avg_job_growth,Institutional_effectiveness)	-0.099	0.152	-0.65	0.515

APPENDIX C

The model results are given in the following table. The model specifications structure is:

Factors Considered in States' Higher Education Funding Systems	
State	**Funding Factors Used**
Alabama	Course completions; student retention/progression; degrees and certificates awarded; time-to-degree (on-time completion)
Alaska	Generally relies upon institution requests. No performance-based approach.
Arizona	Increase in degrees awarded (weighted for STEM and other high-need fields); increase in completed student credit hours; increase in externally-generated research and public service funding
Arkansas	Credentials awarded (degrees/certificates); student progression (credit-hour milestones); transfer success; gateway course success; time to degree; credits at completion; 4-yr only: research activity; efficiency metrics (e.g. spending ratios)
California	Community college equity & success metrics (e.g. number of degrees/certificates, transfers, completion of college English/math, credits attained, enrollment of low-income students). No performance funding in UC/CSU (enrollment-based funding).
Colorado	Pell-Eligible Students, Underrepresented Minority Students, Retention Rate, Resident Full-Time Enrollment, Graduation Rate @ 100% of Normal Time, Graduation Rate @ 150% of Normal Time, First-Generation Resident Headcount, Credential Production
Connecticut	N/A/ (no performance formula)
Delaware	N/A (no performance formula – funding based on enrollment & base budgets)
Florida	Universities: 10-metric model – 4-year grad rate; 2nd-year retention (with GPA≥2.0); degrees in areas of strategic emphasis (STEM); access rate (% Pell students); job placement or continuing ed rate; median wages of graduates; average cost to student; Pell student grad rate; etc. Colleges: metrics on retention, graduation and transfer rates, job placement and continuing education outcomes (performance-based incentives since ~2012).
Georgia	N/A (no formal PBF formula – state funding relies on enrollment and targeted initiatives)

Hawaii	Degree completions (degrees and certificates awarded); transfers from 2-yr to 4-yr; degrees in STEM fields; other student success outcomes (with goals set by sector)
Illinois	Degree and certificate completion (especially for underrepresented, low-income and adult students); student transfer and progression metrics; recognition of institutional mission differences. Bachelor's degrees awarded; Master's degrees awarded; Doctoral and Professional degrees awarded; Undergraduate degrees per 100 FTE; Research and public service expenditures; Graduation Rates 150% of Time; Persistence (24 Credit Hours Completed in One Year); Cost per Credit Hour; Cost per Completion
Idaho	Enrollment Workload Adjustment (Enrollment-based), also separate categories of funding include credit-bearing courses, dual enrollment, and non-credit/headstart to workforce training. Adapating to more outcomes based.
Indiana	Degree completions (with premium funding for "high-impact" degrees in STEM and other priority fields); student persistence (credit hour milestones achieved); research expenditures and dual credit/course completions (as applicable by campus mission); outcomes weighted more for at-risk student success
Iowa	Enrollment-based metrics (in-state undergraduates, in-state graduates, targeted groups (low-income, ethnic minorities, veterans, community college transfers), undergraduate progression. Also, targeted appropriations
Kansas	Institutions set performance targets on metrics such as graduation rates, first-year retention, degree completions, student job placement or transfer, research activity, etc. – funding is awarded based on progress toward these goals (subject to available new funds)
Kentucky	Degree and certificate production; number of students progressing beyond credit-hour thresholds; number of STEM+Health degrees; degrees earned by low-income and underrepresented minority students
Louisiana	Student credit hour completion and retention; graduation rates; total degrees awarded; degrees in high-demand fields; outcomes for focus populations (e.g. adult completers); Number of completers leading to 4&5 star jobs.
Maine	Although considered, Maine does not use PBF system.
Maryland	N/A (no formal PBF – funding allocated via enrollment formulas and mission-based support)
Massachusetts	Metrics emphasized student success outcomes: graduation and retention rates, degrees awarded (especially to underserved groups), transfer rates, etc. (accountability components in funding formula)
Michigan	Performance-based funding was repealed in the FY 2023-24 state budget.
Minnesota	A small portion of funding (e.g. 5%) was tied to meeting goals on metrics such as graduation rates, retention rates, job placement, and number of degrees awarded (for both University of MN and State Colleges/Univ.)
Mississippi	Performance based allocation makes up 10% of total (at least in theory). Factors include priority fields, degrees types awarded, at risk students (incl. Pell grantees, but not minorities), retention rates and student progression, # of degrees awarded per 100 FTE, # of degrees per $100k in revenue.
Missouri	Based on three large categories: student success and progress, efficiency and affordability, and graduate outcomes. Changes based on institution type.
Montana	Student retention (year-to-year persistence); degree and certificate completions – with performance targets set separately for 2-year and 4-year units (reflecting mission differences)
Nebraska	N/A (no performance funding system – state funding based on enrollment and baseline budgets)

Nevada	Nearly 100% of state funding is allocated by outcomes: completed course credits (weighted by course level and field) are the primary driver (rewarding course completion instead of enrollment), and degree completions in STEM and health fields carry extra weight
New Hampshire	N/A (no performance-based funding – state appropriations are lump-sum with no outcomes formula)
New Jersey	Total degrees conferred (with premiums for degrees awarded to low-income, underrepresented minority, and adult students); progression measures (e.g. credits completed); 4- and 6-year graduation rates; other student success metrics aligned to state attainment goals. The total number of degrees awarded; the number of degrees awarded to individuals from underrepresented ethnic and racial minority groups; the number of students at the institution with adjusted gross income between $0 and $65,000; degrees awarded to students with adjusted gross income between $0 and $65,000; degrees awarded to transfer students; degrees awarded in the STEM and healthcare fields; and the number of doctoral degrees awarded.
New Mexico	Completed student credit hours (funding follows course completions instead of enrollments); degrees and certificates awarded; premium weights for awards in STEM and health fields and for awards to economically disadvantaged students
New York	New York has not had a sustained PBF formula. (Some short-term initiatives around 2015 rewarded CUNY/SUNY colleges for improved graduation rates, research, etc., but no ongoing outcomes-based formula)
North Carolina	7 Measures: first-year student success (credit momentum in year 1); GED/pass rates for basic skills students; completion of college-level English and math; fall-to-fall curriculum retention; curriculum graduation and transfer rates; licensure and certification exam pass rates; college transfer performance
North Dakota	100% of base funding tied to completed credits: state appropriations are allocated via a credit-hour completion formula (differentiated by course level and program) – effectively all funding is performance-based. (Degrees awarded are indirectly incentivized via the credit completion funding.)
Ohio	Nearly all state operating funds are allocated by outcomes: course completions (completed FTEs) and degree completions are key metrics. Universities: ~50% on degree completions (weighted by program and at-risk student status) and ~30% on course completions, plus doctoral/research factors; Community Colleges: success points for milestones (remedial success, 15 and 30 credits, transfers, etc.) and completions (degrees/certs) with at-risk weighting
Oklahoma	The State Regents developed performance metrics (e.g. graduation rates, degree completions, retention, and other goals) to guide annual allocations, but funding impact has been minimal due to the lump-sum appropriation system and frequent funding shortfalls. (Performance formula exists on paper, with plans to strengthen it). Performance measures used in the new Performance Funding Formula are: 1) Campus Degree Completion Plan, 2) First Year Retention Rates. 3) Pell Grant Retention, 4) 24 Hour Course Passage, 5) Graduation Rates, 6) Complete College America Degree Target Goals, 7) Number of Certificates/ Degrees Conferred and 8) Maintenance of Program Certification.
Oregon	Universities: Student Success and Completion Model (SSCM) since FY2015 – metrics include degrees awarded (with extra weight for low-income, minority, and rural students), student credit hours completed (weighted by level and discipline), and completions in targeted fields. Community Colleges: starting FY2024–25, 10% of state funding based on student success and equity metrics (e.g. number of underserved students enrolled, number of students completing 30+ credits, completing gateway English/ math, CTE program completions)
Pennsylvania	PASSHE (state university system) from 2000–2019 allocated a portion of base funding on metrics such as student retention rates, graduation rates, degrees conferred, and other indicators (e.g. faculty productivity, private fundraising) aligned to strategic goals. (No current PBF; in 2024 a council recommended a new outcomes-based model for state-related universities, but not yet implemented.)
Rhode Island	Although considered, Rhode Island does not use PBF.

South Carolina	Technical Colleges: a performance funding component allocates a portion of funding based on outcomes such as graduation rates, job placement or continuing education rates, and success of minority students (per STC accountability measures). Universities: South Carolina's comprehensive 37-metric PBF system (covering graduation rates, faculty credentials, institutional efficiency, etc.) was implemented in 1998 and fully repealed by 2003.
South Dakota	The Board of Regents experimented with performance funding (small pools rewarding increases in graduates, retention improvements, etc.) in the early 2000s. These efforts were short-lived and are not currently in use (SD's funding now enrollment-based).
Tennessee	All state funding is allocated by outcomes: student progression (credit hour benchmarks at 12/24/36 credits for CC, 30/60/90 for univ.); degrees awarded (with premium weights for adult, low-income, and veteran students) transfer student success; research and service mission outcomes (for universities); workforce training and grad placement (for CC); Six year graduation rate (4-year inst.). Tennessee also has a Quality Assurance Fund bonus for metrics like program accreditation, student engagement, and other quality indicators.
Texas	2014–2023: "Student Success Points" system – metrics for each student achieving milestones: completing a college-level math course, completing 15 credits, earning a certificate or degree, and transferring to a university (each with a point value, funding per point). 2023 onward: New formula (HB 8) bases ~90% of community college funding on outcomes: dual enrollment completions (HS students earning ≥15 college credits), successful transfers to 4-year, and credential attainment (degrees, certificates, workforce credentials), with extra weights for credentials in high-demand fields and for outcomes of economically disadvantaged or adult students. (No PBF for Texas public universities at present.)
Utah	Metrics set by the Utah Board of Higher Ed include: responsiveness to workforce needs (credentials in high-demand fields); the percentage of K-12 graduates attending college; and timely completion of degrees (6 years measure). (The Utah System of Tech Colleges also uses metrics like certificates awarded, short-term training completions, job placements, etc. for funding).
Vermont	The state primary funds higher education through a base formulas. New funding may be allocated based upon performance indicators.
Virginia	For community colleges, 20% of state allocation is based on performance metrics. Metrics include fall-to-next-year student retention; transfer rate to 4-year institutions; graduation and credential attainment rate; and awards in STEM-H fields (science, tech, engineering, math, health). (Equity bonuses provided for outcomes of underrepresented students.) Four year universities use a base adequacy model. The only performance funding linkage is with interest earnings and bonuses.
Washington	A point-based system rewards colleges for student milestones and completions: basic skills gains, earning 15 and 30 college credits, completion of college-level math, completion of degrees and certificates, and transfer to four-year institutions. (Funding is set aside to be distributed based on each college's total performance points.) Washington does not use performance funding for 4-year universities.
West Virginia	Newly implemented models for WV public colleges: Four-year sector formula emphasizes enrollment and completion of in-state students, progression (credit completion), degrees awarded (with premiums for STEM fields and for at-risk student completions), and on-time graduation rates; Two-year sector formula focuses on student success in workforce programs, associate degree completion, transfers, etc. (Each model includes equity weights for adults, low-income, and academically underprepared students.)
Wisconsin	Technical Colleges: 30% of state aid (since 2014) is distributed based on outcomes including: job placement rates of graduates, degrees and certificates awarded (especially in high-demand fields), retention rates, enrollment of underserved students, dual-enrollment credits, and industry-recognized certifications. Universities: As of 2018, new state funds are allocated by a performance formula with metrics such as 6-year graduation rate, 1st-to-2nd year retention, number of degrees awarded (overall and in STEM fields), and efficiency (e.g. degrees per 100 FTE).
Wyoming	A portion of state funding is performance-based for community colleges, using metrics: course completion rates; degrees and certificates awarded; and completion of programs in priority fields (e.g. STEM, health). Outcomes are weighted to incentivize progression of adults and other focus populations in some years. (Wyoming's model puts emphasis on degree completion while maintaining a funding floor for enrollment.) The University of Wyoming is funded through a block grant.

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