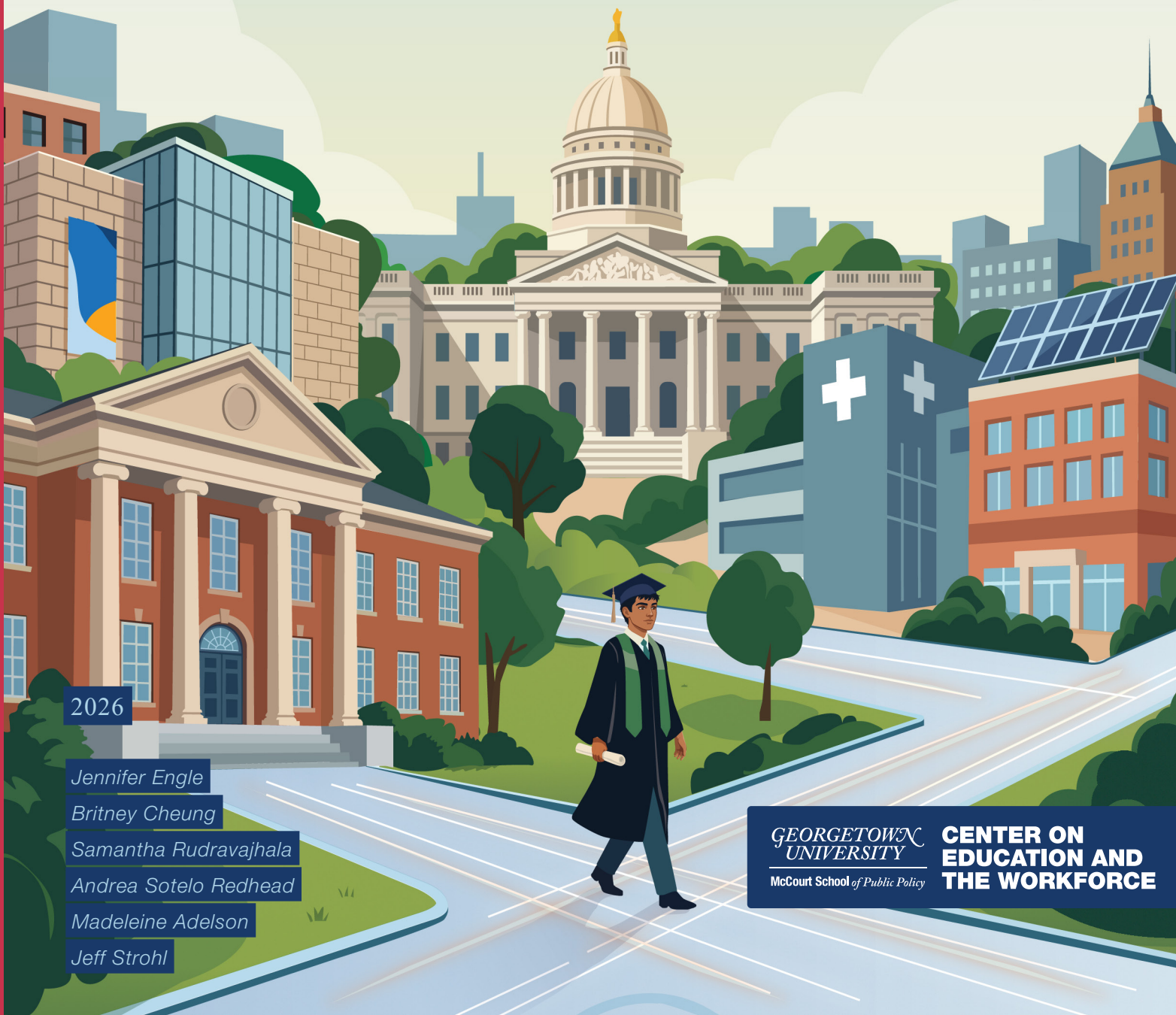


Report 2 in the Postsecondary Value Series

Measuring Postsecondary Value

A Model for Applying Research
to Policy and Practice



2026

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CENTER ON
EDUCATION AND
THE WORKFORCE

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Contents

Abstract	1
Introduction	3
The Growing Call for Credentials of Value	3
The Evolution Toward Value in Postsecondary Education	5
Efforts to Measure Postsecondary Education Value	6
Part 1. The Postsecondary Value Model	9
Investment: Are personal, public, and private investments sufficient to support broad participation in postsecondary education and training systems?	14
Personal Expenditures	14
Institutional, State, and Federal Expenditures	16
Private Expenditures	18
Education: Are postsecondary education and workforce training systems producing enough skilled graduates to meet attainment goals?	19
Access	20
Success	21
Learning	24
Employment: Are postsecondary education and training credentials appropriately aligned	

with workforce needs to support graduates' transitions into quality jobs and career pathways?.....26

Employment.....27

Job Quality.....29

Workforce Alignment.....31

Earnings: Are postsecondary education and training credentials providing sufficient economic benefit to graduates to justify private and public investments?.....33

Return on Investment.....34

Earnings Gains.....51

Economic Mobility.....54

Wealth: Are postsecondary education and training credentials enabling graduates to accumulate assets that contribute to personal and public wealth?.....55

Debt as Negative Wealth.....56

Personal Assets.....58

Public Economic Benefits.....61

Well-being: Are postsecondary education and training credentials improving the quality of graduates' lives and communities?.....62

Personal Well-Being.....62

Social Well-Being.....64

Civic Well-Being.....66

Part 2. The Use Cases for Value Metrics.....67

Part 3. The Future of Value Research 74

References.....77

Appendix A. Summary of Metrics in the Postsecondary Value Model.....95

Appendix B. Glossary of Abbreviations.....105

Tables

Table 1. The Postsecondary Value Model.....12

Table 2. Major Resources and Frameworks Whose Work Informs the Postsecondary Value Model.....12

Table 3. Comparing Return on Investment Metrics.....36

Table 4. Applying Variations on Break-even ROI Metrics to Use Cases.....42

Table 5. Comparing Major Public Data Sources for Constructing Return on Investment Metrics for Institutions and Programs.....45

Table 6. Identifying Levers that Can Improve Return on Investment in Postsecondary Education and Training.....76

Abstract

The public increasingly wants to know that their investments in postsecondary education will pay off, particularly given the high costs associated with enrollment. Over the past 10 years, growing calls for assurance about the value of higher education have motivated educational leaders and experts to develop new metrics for measuring the benefits of postsecondary credentials, resulting in a proliferation of value frameworks. The challenge for states, systems, and institutions interested in adopting value metrics to improve students' post-college outcomes is determining which metrics and which definitions to use for each specific context and use case.

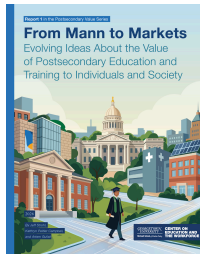
This report aims to provide a user-friendly resource for policymakers, administrators, practitioners, and researchers that maps the many efforts to measure postsecondary value. The resulting Postsecondary Value Model (PVM) organizes metrics into categories that generally align with educational inputs (e.g., investments) and outputs (e.g., credentials) that contribute to value-related outcomes (e.g., employment, earnings, wealth, well-being). The report uses this model to support stakeholders by

- offering guidance on selecting value metrics,
- suggesting promising practices for defining value metrics,
- providing information on relevant data sources for value metrics, and
- suggesting improvements to data sources to better measure value using these metrics.

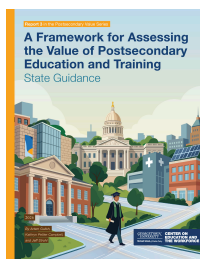
Given that our postsecondary education and training systems offer disparate opportunities and produce varying outcomes, the report also recommends disaggregating value data according to student characteristics (such as race/ethnicity, gender, and socioeconomic status) in order to improve the production of credentials of value for all students, especially those from underserved populations.

The report also aims to help stakeholders identify which metrics from the PVM may be most useful for their contexts and use cases (i.e., transparency, improvement, accountability, funding, workforce development, case making). Finally, the report offers suggestions on how the next phase of value research should arm education providers, employers, and policymakers with the information they need to understand both how they are performing on value metrics and how they are performing on the factors that affect value. With this information, education providers, employers, and policymakers can identify policy and practice levers with the potential to increase postsecondary value.

This report complements two other reports in this series:



From Mann to Markets: Evolving Ideas About the Value of Postsecondary Education and Training to Individuals and Society examines the historical evolution of the concept of value in education from the whole person model to the human capital model.



A Framework for Assessing the Value of Postsecondary Education and Training: State Guidance offers specific guidance to state leaders on selecting and applying value measures for policy, accountability, and transparency use cases.



Introduction

The Growing Call for Credentials of Value

It has long been established that earning a postsecondary credential generally pays off. The evidence has consistently demonstrated that postsecondary education confers considerable private and public benefits that enrich both individuals *and* society; these range from monetary gains such as higher earnings and tax revenue to nonmonetary gains like a greater sense of well-being or personal empowerment.¹ The demand for postsecondary education has also been steadily increasing over the past four decades, with 72 percent of all jobs projected to require workers with at least some training beyond high school by 2031.² An educated workforce has never been more important to our economy and society, and yet, questions about the value of postsecondary training and credentials abound. The public unease about postsecondary education threatens to leave even more people behind and undermine the promise of opportunity for all.

Over the past 15 years, the proportion of adults in the US who believe that postsecondary education is very important dropped by 40 percentage points, from 75 percent in 2010 to 35 percent in 2025.³ Many people worry that postsecondary education fails to prepare students for the workforce and costs too much, with a growing contingent concerned about politics on campuses.⁴ The public is no longer swayed by data showing that postsecondary education benefits students on average or in the aggregate. They want to know if postsecondary education will pay off financially for them, their families, and their communities.

The public's concerns about monetary value are not without cause. Labor-market projections point to a talent shortage driven in part by misalignment among the credentials conferred by postsecondary institutions and the skills required to meet employers' needs.⁵ This misalignment may be contributing to an increase in unemployment among recent graduates⁶ as well as a significant share of early-career workers with middle-skills credentials who do not have reasonably well-paying jobs.⁷ While current economic conditions are concerning for all workers, unemployment rates among recent graduates have

1 Pender et al., *Education Pays 2026*, 2026; and Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

2 Our research predicts that 29 percent of jobs will require some college or an associate's degree and 42 percent of jobs will require a bachelor's degree or higher in 2031. Carnevale et al., *After Everything*, 2023.

3 Saad, "Perceived Importance of College Hits New Low," 2025.

4 Jones, "U.S. Public Trust in Higher Ed Rises from Recent Low," 2025.

5 Strohl et al., *The Great Misalignment*, 2024; and Cengage Group, *The Missing Link*, 2025.

6 Ozcan and Sullivan, "Recent College Grads Bear the Brunt of Labor-Market Shifts," 2025.

7 Only one-quarter of early-career workers with a certificate or an associate's degree have a "good job," suggesting that three-quarters of graduates are not experiencing the return they should expect from their investment. McLeod et al., *Bridging the Middle Skills Gap*, 2025.

become a focal point in the media, heightening the sense of a disconnect between educational attainment and economic opportunity. These conditions contribute to unease about whether postsecondary credentials lead to labor-market value, especially given the costs that students incur to obtain them.

The cost of attendance for undergraduates has increased by 140 percent over the past 45 years even after adjusting for inflation,⁸ though the net cost after grant aid has actually declined slightly in recent years.⁹ Still, too many students—especially those from the lowest-income families—are left with a bill *after* grant aid that represents a substantial portion of their annual household income.¹⁰ Affordability clearly remains a major barrier for many students, especially low-income students and Black/African American students, who are more likely to borrow than their peers and borrow slightly more.¹¹ These students are also more likely to default on their loans, in part because they are less likely to earn credentials—yet they also default more often than their peers even when they do complete.¹² While postsecondary education is certainly worth the investment for many, the students who could benefit most often have the least opportunity to earn credentials of value.

More than half of adults (about 55 percent) in the US have a post-high school credential, up from 38 percent 15 years ago.¹³ Despite increases in attainment for most groups and states,¹⁴ only 37 percent of Black/African American adults, 30 percent of Hispanic/Latino adults, and 27 percent of American Indian and Alaska Native adults have an associate's degree or higher today.¹⁵ Young adults from low-income families are also less likely to earn postsecondary credentials, with only 16 percent earning bachelor's degrees by age 24 compared with 58 percent from high-income families.¹⁶ The country clearly needs to increase postsecondary access and completion for underserved populations to make progress toward the levels of educational attainment needed to power our workforce and to reap the trillions in economic benefits that could be realized by ensuring that everyone has an equal opportunity to earn postsecondary credentials.¹⁷

8 US Department of Education, National Center for Education Statistics (NCES), Table 331.30 of the *Digest of Education Statistics 2023*, 2023.

9 US Department of Education, National Center for Education Statistics (NCES), Table 331.30 of the *Digest of Education Statistics 2023*, 2023.

10 The Pell Institute for the Study of Opportunity in Higher Education, *Indicators of Higher Education Equity in the United States*, 2024.

11 Georgetown University Center on Education and the Workforce analysis of data from the US Department of Education, National Postsecondary Student Aid Study (NPSAS), 2020 (Undergraduate and Graduate); and Postsecondary Value Commission, "Exploring Equitable Postsecondary Value," n.d.

12 Scott-Clayton, "What Accounts for Gaps in Student Loan Default, and What Happens After," 2018.

13 These figures include short-term credentials. Lumina Foundation, "Educational Attainment in the United States," 2026.

14 Lumina Foundation, "Educational Attainment in the United States," 2026; and Brown, "Reflecting on 15 Years," 2025.

15 These figures represent 2021–23 three-year estimates (ages 25–64, excluding short-term credentials). Lumina Foundation, "Degree Attainment by State and Race/Ethnicity in the United States," n.d.

16 The Pell Institute for the Study of Opportunity in Higher Education, *Indicators of Higher Education Equity in the United States*, 2024.

17 Carnevale et al., *Learning and Earning by Degrees*, 2024; and Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

Attainment is no longer enough, though. The public and policymakers are calling on postsecondary education to confer credentials of value that align with labor-market opportunities, deliver returns high enough to more than recoup the costs, lead to career pathways that support economic prosperity, and enhance personal empowerment and well-being.

The Evolution Toward Value in Postsecondary Education

Over the past 20 years, a growing number of postsecondary leaders have focused their work on improving completion rates and closing completion gaps for undergraduate students by income and race.¹⁸ This focus grew partly out of a fear that the US was losing its status as one of the most educated countries in the world and that its economic competitiveness would suffer as a result.¹⁹ Reflecting on these concerns, postsecondary leaders realized that the predominant focus on postsecondary access in prior decades had not yet led to significantly increased postsecondary attainment, even though it did lessen enrollment disparities.²⁰ In response to this realization, postsecondary leaders across the country have spent two decades setting and working toward attainment goals; implementing policies and practices aimed at improving undergraduate retention, transfer, and completion rates; and using data to track their progress.²¹

Efforts to improve postsecondary completion were bolstered by new federal requirements for postsecondary institutions to begin reporting undergraduate transfer and graduation data in the late 1990s and retention data in the early 2000s.²² With these data, postsecondary leaders could identify disparities in completion rates among their students by race/ethnicity and benchmark completion rates against those of peer institutions to set improvement targets. A number of intermediary organizations in the early 2000s also began to organize networks to help postsecondary institutions, systems, and states use their data to implement and evaluate efforts to improve students' outcomes.²³

The focus on completion has yielded real progress. Based on the most recently available data, the percentage of undergraduate students completing their studies in six years increased from 55 percent for the 2008 cohort to 62 percent for the 2017 cohort nationally, with progress in every sector, among all racial/ethnic subgroups, and in most states over this time period.²⁴ Still, there are double-digit disparities between some groups in attainment rates as well as in completion rates,

18 See, for example, Complete College America, *Scaling Completion*, 2024.

19 OECD, "Population with Tertiary Education," n.d.

20 The Pell Institute for the Study of Opportunity in Higher Education, *Indicators of Higher Education Equity in the United States*, 2024.

21 See, for example, Complete College America, *Scaling Completion*, 2024.

22 US Department of Education, "Student Assistance General Provisions," 1995.

23 See, for example, Complete College America, *Using a Measurement System to Strengthen Student Success Reforms*, 2023; and Achieving the Dream, "Achieving the Dream," n.d.

24 National Student Clearinghouse Research Center, *Completing College*, 2023.

with negative consequences for underserved populations.²⁵ The overall cost of noncompletion on this scale is significant, especially for students who leave postsecondary education with debt but no credential and therefore do not receive the full earnings premium associated with a degree. Despite progress, there is still work to be done to raise completion rates and close attainment gaps.

Given recent concerns about the cost and relevance of credentials, though, postsecondary leaders are refocusing their current efforts to increase completion and attainment on producing credentials with labor-market value. This work began in earnest in 2015, when data on post-college earnings and loan repayment rates became more widely available via the College Scorecard. These College Scorecard data added to our growing understanding that institutions with lower completion rates often have lower earnings and education loan repayment rates. However, the data also showed that relatively high completion rates do not always lead to higher earnings and repayment rates at some institutions and programs,²⁶ raising additional concerns about the quality of some postsecondary credentials and their alignment to the skills needed to succeed in the workforce.²⁷ There is little question today that the push for attainment must focus at least in part on monetary value—though as we argue in this series, the true value of a credential is multifaceted and includes both monetary and nonmonetary dimensions.

Efforts to Measure Postsecondary Education Value

Early efforts to measure post-college outcomes at the program and institutional levels originated in the states, with Florida leading the way as one of the first to link postsecondary education to earnings data using the state’s Unemployment Insurance (UI) system in the mid-1990s.²⁸ This innovation helped proliferate the idea for statewide longitudinal data systems (SLDSs), with 32 states linking education and employment data in their SLDSs today.²⁹ A group of bellwether states—including Colorado, Florida, Minnesota, Tennessee, Texas, and Virginia—began publishing earnings data by program and institution through the College Measures initiative, which started in 2012.³⁰

25 Attainment rates refer to the percentage of the US adult population with postsecondary credentials. Completion rates refer to the percentage of enrolled students who complete their credentials within a specified timeframe. National Student Clearinghouse Research Center, *Completing College*, 2023; US Department of Education, National Center for Education Statistics (NCES), Table 326.10 in *Digest of Education Statistics 2024*, 2024; and US Department of Education, National Center for Education Statistics (NCES), Table 2 in *IPEDS Data Explorer*, 2024.

26 Postsecondary Value Commission, *Equitable Value*, 2021.

27 Education Strategy Group, *The Great Value Shift*, 2025.

28 Pfeiffer, *Student Follow-Up Using Automated Record Linkage Techniques*, 1994.

29 Education Commission of the States, “Statewide Longitudinal Data Systems 2024,” 2024.

30 This initiative has now ended, likely because the information it made public is now available from the College Scorecard. American Institutes for Research, “College Measures,” n.d.

In 2013, the Obama administration announced its plan to develop a new rating system to “help students compare the value and affordability of colleges and encourage colleges to improve.”³¹ The administration intended for the ratings to include metrics related to access, affordability, and outcomes such as graduation rates and earnings.³² Although the plan had support, postsecondary institutions vocally opposed a rating system, and the administration shifted toward a consumer information website instead. Released in 2015, the College Scorecard published debt, repayment, and earnings data (linking to IRS records) for institutions administering federal Title IV financial aid across the country—a major advancement in data availability.

Through the Gainful Employment regulations, the Obama administration also launched an ambitious effort to use debt, repayment, and earnings data to hold career-focused programs accountable for student outcomes. The first Gainful Employment rule, published in 2011, was amended in response to lawsuits from for-profit institutions. A 2014 Gainful Employment rule followed, but the first Trump administration delayed further implementation and eventually rescinded this rule in 2019. The Trump administration did start publishing program-level debt, repayment, and earnings data through the College Scorecard in that same year in a movement away from regulatory efforts toward information-based transparency.³³

Despite these early challenges, federal efforts to make post-college outcomes data widely and publicly available through the College Scorecard unleashed the potential for research and policy focused on measuring the value of postsecondary credentials at the program and institutional levels. Over the past 10 years, a number of high-profile initiatives have attempted to measure whether postsecondary institutions are equipping their students to make a minimum earnings premium, after accounting for costs, over the earnings of high school graduates (e.g., the Postsecondary Value Commission and Third Way)³⁴ and to realize the long-term economic benefits of their credentials (e.g., the Georgetown University Center on Education and the Workforce and the Foundation for Research on Equal Opportunity).³⁵ Using other data sources, researchers have likewise attempted to measure whether postsecondary students experience economic mobility in relation to their parents (e.g., Opportunity Insights);³⁶ they have also attempted to measure value beyond earnings in recognition that postsecondary education confers both monetary and nonmonetary benefits.³⁷ (This report delves into the details about these and other value metrics, including nonearnings metrics, in the next section.)

31 The White House, *Fact Sheet*, 2013.

32 US Department of Education, “Request for Information to Gather Technical Expertise Pertaining to Data Elements, Metrics, Data Collection, Weighting, Scoring, and Presentation of a Postsecondary Institution Ratings System,” 2013.

33 Weiss, “The Tortured Path of the Gainful Employment Rule,” 2023; and US Executive Office of the President, “Executive Order on Improving Free Inquiry, Transparency, and Accountability at Colleges and Universities,” 2019.

34 Postsecondary Value Commission, *Equitable Value*, 2021; and Itzkowitz, *Price-to-Earnings Premium*, 2020.

35 Cheah et al., *Ranking 4,600 Colleges by ROI (2025)*, 2025; and Cooper, *Higher Education’s Return on Investment*, n.d.

36 Chetty et al., “Mobility Report Cards,” 2017.

37 Carnevale et al., *Learning and Earning by Degrees*, 2024.

As a result of these and other efforts, the conversation about postsecondary value has shifted significantly in the 10 years since the College Scorecard became available. Support for economic value metrics has grown considerably. Texas recently codified a definition of credentials of value focused on return on investment into state law; other states are considering similar policies.³⁸ National initiatives have begun to anchor their attainment efforts to monetary value—for example, Lumina Foundation has set a goal that 75 percent of working-age adults in the US labor force will have postsecondary degrees or other credentials of value leading to economic prosperity by 2040, which is currently measured by a 15 percent earnings premium over high school graduates.³⁹ Bipartisan support now exists at the federal level for measuring credentials' monetary value, with new accountability measures focused on earnings passed by Congress in 2025.⁴⁰

The proliferation of value metrics and frameworks has generated both great interest and confusion. States, systems, and institutions interested in adopting value metrics to improve their students' post-college outcomes are challenged in determining which metrics and which definitions to use for each specific context and use case. This report aims to provide a user-friendly resource for policymakers, administrators, practitioners, and researchers that maps the many efforts to measure postsecondary value. It offers guidance on selecting value metrics, suggests promising practices for defining them, provides information on relevant data sources for value metrics, and includes suggested improvements to these data sources to better measure value. This report also offers guidance on selecting value metrics for specific use cases and on conducting future value research to help support broader implementation of these metrics in the field.

38 Texas Legislature, House Bill 8, 88th Legislature, Regular Session, 2023; Colorado General Assembly, House Bill 22-1349, 2022; Colorado Department of Higher Education, *Colorado Minimum Value Threshold*, 2024; Education Strategy Group, *Florida Credential of Value Workgroup Report*, 2022; Education Strategy Group, *The Great Value Shift*, 2025; and Carroll, *Investing in Value*, 2025.

39 Lumina Foundation, "Introducing the Credentials of Value Goal," 2026; College Futures Foundation, "Our Focus Areas," n.d.; and Education Strategy Group, "Bringing States Together to Identify Credentials of Value," n.d.

40 While Congressional Democrats did not support OBBBA, they have supported prior accountability efforts based on earnings such as Gainful Employment. United States Congress, H.R. 1 — An Act to Provide for Reconciliation Pursuant to Title II of H. Con. Res. 14. 119th Cong., became Public Law No. 119-21, 2025; and Vaughan and Agudelo, "Big Beautiful Bill—Earnings Premium for Nonprofit and Public Universities," 2025.

PART 1

The Postsecondary Value Model

This report leverages the economic concept of the education production function⁴¹ to describe a core set of metrics that can be used to measure how postsecondary education generates value for both individuals and society. The production function, popularized by Hanushek and other researchers in the K–12 education context,⁴² examines the relationships among educational inputs (e.g., characteristics of students, families, and schools, including funding) and how these inputs affect educational outputs or outcomes. In particular, the education production function establishes important relationships between resources and outcomes, and in doing so, can point toward policy and practice levers to improve student outcomes.

Building on this work, we provide a postsecondary value model that aims to help leaders understand key metrics for measuring value. These metrics also point to key leverage points where interventions can act as levers to support the production of credentials that lead to monetary and nonmonetary value for both students and society.⁴³ While this report does not provide a full discussion of the policies and practices that can act as levers to increase value, it does offer recommendations about the research agenda needed to identify leverage points and levers for the purpose of optimizing the production of postsecondary credentials of value.

The Postsecondary Value Model organizes metrics into categories that generally align with educational inputs (e.g., investments) and outputs (e.g., credentials) that contribute to value-related outcomes (e.g., employment, earnings). We see outputs⁴⁴ as distinct from outcomes, with the former describing what transpired during the educational process (e.g., students did or did not earn credentials) and the latter describing the effect on students' experiences after the educational process (e.g., students with credentials did or did not experience increased earnings). In this model, inputs (such as student expenditures, institutional expenditures, and state and federal expenditures) generally contribute to educational outputs (such as access, success, and attainment rates) that contribute in turn to outcomes (such as earnings and employment after leaving school). We see inputs as potential leverage points to improve outcomes, and we are specifically concerned with resource inputs that reflect monetary investment in education. We also recognize that the education process itself transforms inputs into outputs, which can suggest additional leverage points for improving outcomes. As such, we suggest using input and output metrics together to evaluate value-related outcomes in this model,

41 See further discussion on the development of the education production function in the first report in this series, Strohl et al., *From Mann to Markets*, 2026.

42 See, for example, Hanushek, "Education Production Functions," 2008.

43 While this report focuses on the value of credentials, research has shown that there is some economic benefit to enrolling in a postsecondary institution or program even without ever earning a credential. Giani et al., *The Value of an Incomplete Degree*, 2019.

44 In production terms, these outputs can be thought of as intermediate goods.

such as earnings measured in relation to investments or a living wage. While our focus is primarily on educational policy and practice, we also recognize that employers and the labor market more broadly affect both the education and workforce sides of this model, as discussed further in the use case section of this report.

We acknowledge that the process from inputs to outputs to outcomes is not always linear or chronological, and the relationships among inputs, outputs, and outcomes vary.⁴⁵ For instance, researchers often consider employment and earnings as primary or direct outcomes of education, while considering wealth to be a secondary or indirect outcome since wealth is affected by earnings and employment as well as other factors outside of the educational process such as family and community influences. Well-being is even more complicated by environmental influences.⁴⁶ Earnings and employment are also affected by factors outside of education, of course, but substantial research has nonetheless established a relatively direct relationship between credential attainment on one hand and earnings and employment on the other.⁴⁷

We also acknowledge that some researchers have noted concerns about the use of the education production function in postsecondary education due to factors such as limited information about educational processes in the classroom and on campus; selection biases among students and faculty regarding the institutions in which they enroll or are employed; and the difficulty of distinguishing among the effects of higher spending and higher selectivity at elite institutions.⁴⁸ While we use the concept of the education production function to help simplify our discussion of value-related metrics used by leaders in the field, we do not intend to oversimplify the relationships among inputs, outputs, and outcomes or ignore the mediating effects of student and institutional characteristics, which we suggest leaders use to disaggregate their data.

To help stakeholders navigate the model, we organize the metrics categories by critical questions:

- **Investment:** Are personal, public, and private investments sufficient to support broad participation in postsecondary education and training systems?
- **Education:** Are postsecondary education and workforce training systems producing enough skilled graduates to meet attainment goals?

45 For example, primary outcomes such as earnings are continuous, as are secondary outcomes such as wealth, so the relationship is not discretely chronological in nature.

46 In a previous review of the literature on nonmonetary benefits, Carnevale et al. noted that “it is difficult to distinguish between direct and indirect benefits, including those that might accrue as a result of the higher earnings associated with higher educational attainment” and “it is difficult, if not impossible, to establish causal relationships between higher education and nonmonetary benefits.” Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

47 See, for example, Deming, “Four Facts about Human Capital,” 2022.

48 See, for example, Ehrenberg, *Tuition Rising*, 2000; Bowen, *The Costs of Higher Education*, 1980; and Dale and Krueger, “Estimating the Effects of College Characteristics over the Career Using Administrative Earnings Data,” 2014.

- **Employment:** Are postsecondary education and training credentials appropriately aligned with workforce needs to support graduates' transitions into quality jobs and career pathways?
- **Earnings:** Are postsecondary education and training credentials providing sufficient economic benefit to graduates to justify private and public investments?
- **Wealth:** Are postsecondary education and training credentials enabling graduates to accumulate assets that contribute to personal and public wealth?
- **Well-being:** Are postsecondary education and training credentials improving the quality of graduates' lives and communities?

With each of these questions, it is extremely important to ask not just *whether* students are benefiting, but *which* students are benefiting from postsecondary education and training. By measuring disparities in postsecondary value according to students' family income, race/ethnicity, gender, first-generation status, and geography, leaders can use the model to improve the production of credentials of value for all members of their communities and ensure that students from underserved populations aren't left behind. It is also important to disaggregate value-related outcomes by transfer or completion status to help more students chart a successful path toward their credentials as well as to protect students who do not receive the credential—and the labor market premium—they sought to earn. The questions above also prompt leaders to focus on both the personal and public value of credentials, since the benefits of investing in postsecondary education accrue beyond individuals to produce positive outcomes for society. Finally, the questions are framed to encourage improvement on these measures.

While the model does not include all possible value-related metrics, it features the metrics used most prevalently according to our extensive literature review and field scan. The following sections delve into the categories listed above (and outlined in Table 1) by briefly reviewing the research behind the metrics, identifying the resources that define them (with a selection listed in Table 2), and noting major data sources that can be used to measure them. We also discuss current data and measurement gaps that exist for some of these metrics.

TABLE 1. The Postsecondary Value Model

Inputs	Outputs	Primary outcomes		Secondary outcomes	
Investment	Education	Employment	Earnings	Wealth	Well-being
Cumulative net costs and debt	Access ratio	Job placement rate	Return on investment	Student loan repayment	Quality of life
Institutional expenditures	Success rate	Job benefits	Earnings growth	Savings and retirement	Physical and mental health
State expenditures	Graduate education rate	Job advancement	Earnings sufficiency	Homeownership	Social capital
Federal expenditures	Skills and competencies	Job engagement	Earnings premium	Net worth	Charitable activities
Private subsidies	Attainment rate	Workforce alignment	Economic mobility rate	Public economic benefits	Civic engagement

TABLE 2. Major Resources and Frameworks Whose Work Informs the Postsecondary Value Model

Category	Organizations	Resources and frameworks
Investment	US Department of Education	IPEDS, College Scorecard
	State Higher Education Executive Officers	<i>Annual State Higher Education Finance (SHEF) Report</i>
	College Board	<i>Trends in College Pricing and Student Aid</i>
	Credential Engine	<i>Counting U.S. Postsecondary and Secondary Credentials: Budget Report</i>
	Society for Human Resource Management	Annual Employee Benefit Survey
Education	Institute for Higher Education Policy	<i>Toward Convergence: A Technical Guide for the Postsecondary Metrics Framework</i>
	US Department of Labor	WIOA Performance Indicators and Measures
	American Association of Colleges & Universities	Valid Assessment of Learning in Undergraduate Education (VALUE) Rubrics
	Council for Aid to Education	Collegiate Learning Assessment
	Territorium (formerly administered by Educational Testing Service)	E-Proficiency Profile and HEIghten
	National Association of Colleges and Employers (NACE)	<i>Competencies for a Career-Ready Workforce</i>

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Category	Organizations	Resources and frameworks
Employment	Urban Institute	<i>Measuring Job Quality</i>
	Aspen Institute	Statement on Good Jobs
	Jobs For the Future	<i>The American Job Quality Study</i>
	Georgetown University Center on Education and the Workforce	<i>After Everything: Projections of Jobs, Education, and Training Requirements through 2031</i>
	Education Quality Outcomes Standards	Signal of Quality Model
Earnings	US Department of Education	College Scorecard
	Postsecondary Value Commission	Value Thresholds Framework
	Strada Education Foundation	State Opportunity Index
	Third Way	Price-to-Earnings and Economic Mobility Metrics
	Foundation for Research on Equal Opportunity	Return on Investment Metric
	Opportunity Insights	Mobility Report Cards
	American Council on Education	Student Access and Earnings Classification
Wealth	US Bureau of Labor Statistics	Consumer Expenditure Survey (CE)
	Board of Governors of the Federal Reserve	Survey of Consumer Finances (SCF) Consumer Credit Panel (FRNY)
	University of Michigan Institute for Social Research	Panel Study of Income Dynamics (PSID)
	Pew Research Center	Wealth Inequality Research
	Georgetown University Center on Education and the Workforce	<i>The Monetary Value of Economic and Racial Justice in Postsecondary Education</i>
Well-being	Gallup	Alumni Survey
	College Board	<i>Education Pays</i>
	Centers for Disease Control	National Health Interview Survey
	Opportunity Insights	Social Capital Atlas
	US Census Bureau	Voting and Registration Survey and Civic Engagement and Volunteering Supplement

Investment: Are personal, public, and private investments sufficient to support broad participation in postsecondary education and training systems?

Policymakers have long taken an interest in measuring who is paying for postsecondary education, how much they are paying, and especially whether education is affordable for the students who need it most. However, public concerns about whether students are experiencing a return on their investment are generating increased demand for improved cost metrics. With growing urgency, policymakers want to understand costs at the level of specific institutions and programs, and they want to understand how those costs accrue at the state and national levels. This section provides information about metrics and data sources to measure key stakeholder investments—**students’ cumulative net costs and debt, institutional expenditures, state expenditures, federal expenditures, and private subsidies**—as critical inputs into the Postsecondary Value Model.⁴⁹ We differentiate among the level and type of investments made because research has shown that unmet financial need can decrease students’ likelihood of success⁵⁰ and that institutional, state, and federal investments (particularly in need-based financial aid) can increase completion and earnings,⁵¹ which contribute to post-attainment value.

Personal Expenditures

Cumulative net costs are a critical measure of investment by students and their families.

Researchers and policymakers need to measure these costs for both students who complete their credentials and those who do not, since noncompleters are unlikely to experience the full earnings premium associated with completion. The general **definition** of cumulative net costs is the total amount that former students paid after subtracting all sources of grant aid (institutional, state, federal, and private), multiplied by their enrolled time to credential or exit if only annual totals are available. Researchers and policymakers take three standard approaches to operationalizing the definition of net costs: (1) including only net direct costs such as tuition and fees, books, equipment, and supplies after grant aid;⁵² (2) including net direct costs and opportunity costs;⁵³ and (3) including net direct costs and living costs.⁵⁴

49 This report uses cost, expenditures, and subsidies to refer to investment by key stakeholders. We use cost instead of price for cumulative net costs since this investment represents the cost or amount paid by the students. We acknowledge there is a body of research that examines institutional costs that focuses more on what instruction, support services, and other institutional functions should or could cost and whether those costs can be lowered through efficiency efforts; however, this discussion is beyond the scope of this report.

50 Welbeck et al., *Piecing Together the College Affordability Puzzle*, 2014; and Mulhern et al., “The Effects of Rising Student Costs in Higher Education,” 2015.

51 Dynarski and Scott-Clayton, *Financial Aid Policy*, 2013; Webber and Ehrenberg, “Do Expenditures Other Than Instructional Expenditures Affect Graduation and Persistence Rates in American Higher Education?,” 2010; and Cummings et al., *Investigating the Impacts of State Higher Education Appropriations and Financial Aid*, 2021.

52 Delisle and Cohn, “Tuition-to-Earnings Limits,” 2022.

53 Cooper, *Higher Education’s Return on Investment*, n.d.

54 Postsecondary Value Commission, *Equitable Value*, 2021; and Itzkowitz, *Price-to-Earnings Premium*, 2020. Considerations about how to measure living costs, including limitations with existing datasets, will be discussed in the earnings section related to return on investment metrics.

Researchers and policymakers who use only net direct costs contend that students would have to pay living costs regardless of postsecondary attendance, so direct costs best represent students' marginal return on investment. Some also prefer to include opportunity costs in the calculation along with net direct costs, measuring students' forgone wages while enrolled based on the median earnings of high school graduates (or bachelor's degree recipients when calculating for graduate programs).⁵⁵ Others prefer to use net direct costs and living costs, arguing that total upfront costs are a better measure of affordability as well as of the return on students' full investment.⁵⁶ In the section on return on investment (ROI), we delve further into the application of these definitions.

Since more than half of students use loans to cover their costs, researchers have begun to include the estimated interest that students might incur to their cumulative net costs, in some cases prorated by the percentage of students who borrow.⁵⁷ Researchers and policymakers are also interested in **cumulative debt**. The general **definition** of cumulative debt is the total original debt amount borrowed by former students from all sources (federal, institutional, state, and private) plus accumulated or estimated interest over the life of the loans. It is preferable to use actual interest rate and repayment period information if available; however, estimated accumulated interest can be calculated based on a standard interest rate and repayment period. Depending on the use case, cumulative debt can also be defined to include students' borrowing across programs and institutions (e.g., for transfer and graduate students). Cumulative debt is sometimes used as a proxy for students' investments because debt data is more readily available than cost data or because policymakers are specifically interested in protecting borrowers. However, cumulative debt often does not fully capture students' investments as reflected in cumulative net costs since loan limits and other factors affect how much students can or want to borrow against their costs. For a detailed discussion on calculating cumulative net direct costs with estimated interest and opportunity costs to measure return on investment in a state policy context, see the third report in this series, *A Framework for Assessing the Value of Postsecondary Education and Training*.⁵⁸

Given the importance of measuring students' investment in postsecondary education, it is unfortunate that the currently available **data sources**, namely the Integrated Postsecondary Education Data System (IPEDS) and the College Scorecard, have several limitations that prevent the calculation of complete and accurate cumulative net cost and debt metrics. We detail these **data limitations** in the earnings section of this report as part of an in-depth review on return on investment metrics. In brief, while IPEDS and the College Scorecard currently contain the most comprehensive cost and debt data available publicly at the institution and/or program level, the US Department of Education

55 Abel and Deitz, "The Cost of College Continues to Climb," 2019; and Cooper, *Does College Pay Off?*, n.d.

56 Postsecondary Value Commission, *Equitable Value*, 2021; and Lumina Foundation, *A Benchmark for Making College Affordable*, 2017.

57 Cheng, *Recommendations for Measuring Student Investment in College*, 2021; Itzkowitz, *Price-to-Earnings Premium*, 2020; Cooper, *Higher Education's Return on Investment*, n.d.; Pender et al., *Education Pays 2026*, 2026; and Postsecondary Value Commission, *Equitable Value*, 2021.

58 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

(ED) could significantly improve the available data by publishing the Financial Value Transparency (FVT) data collected in 2024–25. The US Department of Education recently renamed FVT as the Student Tuition and Transparency System (STATS) as part of a negotiated rulemaking on federal accountability for postsecondary programs; ED plans to implement an annual collection and publication of these data.⁵⁹

Institutional, State, and Federal Expenditures

Investments in postsecondary education and training involve more than the amounts students pay. Research has shown that higher **institutional expenditures** per student—especially expenditures on instruction, student services, and need-based financial aid—correlate with higher completion rates and earnings, especially at institutions where large proportions of students are from underserved backgrounds.⁶⁰ The **definition** of institutional expenditures may differ depending on which categories are of interest in a particular use case (e.g., research may be useful when considering investment in graduate education). When focused on inputs in relation to students’ value-related outcomes, we recommend minimally including the amount spent (in total or per full-time equivalent, or FTE, student) on instruction, student services, and scholarships and fellowships.⁶¹

The bygone Delta Cost Project recommended using what they called “education and related expenditures” per full-time equivalent student; these expenditures included instruction, student services, and the “education share” of spending on academic and administrative support and operations and maintenance.⁶² IPEDS also publishes a core expenditures measure that covers most spending categories, including instruction, research, public service, academic support, student services, institutional support, operations, and scholarships/fellowships. The IPEDS Finance Survey is the most comprehensive **data source** on institutional expenditures.⁶³ However, it has notable **data limitations**, including some differences in reporting categories among public, private, and for-profit institutions; differences in reporting categories over time; and the inability to disaggregate expenditures by undergraduate vs. graduate education or by program level.

59 US Department of Education, “Financial Value Transparency and Gainful Employment,” 2023; and US Department of Education, *Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability*, 2026.

60 Webber and Ehrenberg, “Do Expenditures Other Than Instructional Expenditures Affect Graduation and Persistence Rates in American Higher Education?,” 2010; Deming and Dynarski, “Into College, Out of Poverty?,” 2009; and Griffith and Rask, “The Effect of Institutional Expenditures on Employment Outcomes and Earnings,” 2016.

61 A full-time equivalent (FTE) student represents one student enrolled full-time for a given period (usually a semester or academic year). Part-time students are counted as a fraction of FTE enrollment based on the number of credits or instructional hours they take relative to a full-time load. This information is available by institution in IPEDS.

62 Janice and Voight, *Toward Convergence*, 2016. Alternately, Cooper defines “education-related spending as the sum of spending on instruction, academic support, student services, and institutional support (administration). It excludes spending on research and public services as well as spending on auxiliary enterprises such as dormitories and independent operations such as hospitals.” Cooper, *Higher Education’s Return on Investment*, n.d.

63 US Department of Education, National Center for Education Statistics (NCES), “IPEDS Survey Components,” n.d.

State expenditures on institutional appropriations and student financial aid affect completion rates, especially for institutions enrolling underserved populations, with increases in state spending correlating to increases in credential completion and cuts correlating to declines in completion.⁶⁴ Evidence from California shows that receiving state financial grant aid also supports students' higher earnings after postsecondary education.⁶⁵ The **definition** of state expenditures typically includes at least the amount spent on state and local appropriations to public postsecondary institutions and state public financial aid programs, which can be calculated in total or by full-time equivalent student. State expenditures may also include appropriations and financial aid for private institutions and/or students at those institutions if relevant and available. State funding for research is generally excluded from value-related analyses, but may be relevant for analyses that include graduate education.

Data sources include the *Annual State Higher Education Finance (SHEF)* report by the State Higher Education Executive Officers association (SHEEO), which tracks state-level figures for state and local appropriations to institutions and funding for state student financial aid programs.⁶⁶ The IPEDS Finance Survey provides state and local appropriations as well as state and local operating and non-operating grants at the institutional level, with the same **data limitations** noted above.⁶⁷

Federal expenditures are another key component of investment in postsecondary education. The **definition** of federal expenditures includes the amount spent total or per FTE student on student financial aid (e.g., Pell grants, loans, work-study funds), appropriations and competitive grants to select institutions (e.g., Title III, Title V, TRIO),⁶⁸ and tax incentives for students (e.g., tax credits, college savings plans). Research funding and grants may also be included based on the use case. Federal need-based aid and student support programs have been shown to improve access and completion,⁶⁹ as have federal student loans, under some conditions.⁷⁰ In Texas, researchers found that increases in completion due to federal need-based aid also led to increases in post-college earnings.⁷¹ In contrast, federal tax incentives have not been shown to improve student outcomes.⁷² **Data sources** for federal expenditures include the IPEDS Finance Survey,⁷³ which collects information on federal appropriations, grants, and contracts by institution, while the Federal Student Aid Data Center at

64 Cummings et al., *Investigating the Impacts of State Higher Education Appropriations and Financial Aid*, 2021; and Deming and Walters, "The Impact of Price Caps and Spending Cuts on U.S. Postsecondary Attainment," 2017.

65 Bettinger et al., "The Long-Run Impacts of Financial Aid," 2019.

66 State Higher Education Executive Officers Association (SHEEO), *State Higher Education Finance*, n.d.

67 US Department of Education, National Center for Education Statistics (NCES), "IPEDS Survey Components," n.d.

68 Most grants to minority-serving institutions, with the exception of those for Historically Black Colleges and Universities, were recently cancelled under the Trump Administration. US Department of Education, "U.S. Department of Education Ends Funding to Racially Discriminatory Discretionary Grant Programs at Minority-Serving Institutions," 2025.

69 Congressional Research Service, *The TRIO Programs*, 2020; Dynarski, "Does Aid Matter?," 2003; Bettinger, "How Financial Aid Affects Persistence," 2004; and Marx and Turner, "Attainment Effects of Student Loans and Pell Grants," 2019.

70 Black et al., *Taking It to the Limit*, 2023; and Dynarski et al., "College Costs, Financial Aid, and Student Decisions," 2022.

71 Denning et al., "ProPelled," 2018.

72 See, for example, Bulman and Hoxby, "The Returns to the Federal Tax Credits for Higher Education," 2015. The research on tax credits has focused primarily on enrollment, but has consistently shown no effects.

73 US Department of Education, National Center for Education Statistics (NCES), "IPEDS Survey Components," n.d.

ED provides information on the total amount of federal grants (including need-based Pell and Federal Supplemental Educational Opportunity Grants) and loans disbursed at the institutional level annually, for both undergraduate and graduate students.⁷⁴ The College Board also regularly compiles data on federal expenditures, particularly on federal student financial aid, in its *Trends in Higher Education* reports.⁷⁵

While many recent efforts to measure public investment—and value—focus on undergraduate degree programs, state and federal expenditures on non-degree and shorter-term credentials offered by workforce training programs should also be considered by education leaders, policymakers, and researchers. Credential Engine compiled a number of data sources to estimate that state-funded education and workforce development programs spend about \$70 billion, federal workforce development grant programs—including but not limited to the Workforce Innovation and Opportunity Act (WIOA) and Perkins programs—spend about \$30 billion, and the US military spends about \$10 billion annually on training programs.⁷⁶ The US Department of Education and the US Department of Labor publish additional information about yearly allocations by state for the federal Perkins program (about \$1.4 billion annually), WIOA programs (about \$4 billion annually), Vocational Rehabilitation programs (about \$4 billion annually), and registered apprenticeships.⁷⁷

Private Expenditures

Private subsidies, particularly from employers, play a significant role in funding postsecondary education and workforce training. The **definition** of private subsidies is the amount that employers and other non-government entities spend on training and professional development, tuition and loan repayment assistance, and training wages such as in apprenticeship programs. Credential Engine compiled a number of **data sources** to estimate that employers spend about \$130 billion annually in direct expenditures on training for their employees and more than \$460 billion on employee training wages; after colleges and universities, employers are the largest source of spending on workforce training. Credential Engine also estimates that private nonprofit and for-profit organizations that grant only certificates—such as business schools, computer training programs, and technical and trade schools—spend about \$75 billion annually on workforce training programs.⁷⁸ The Society for Human Resource Management (SHRM) provides another data

74 US Department of Education, Federal Student Aid Data Center, “Federal Student Aid Data Center,” n.d.

75 Ma et al., *Trends in College Pricing and Student Aid 2025*, 2025.

76 Credential Engine, *Counting U.S. Postsecondary and Secondary Credentials*, 2022. Credential Engine sourced data on state-funded programs from the US Census Bureau, Census of Governments and C2ER, State Economic Development Program Expenditures Database; federal programs from SAM.gov and the Government Accounting Office; and military programs from military operation and maintenance budget estimates.

77 US Department of Education, Office of Career, Technical, and Adult Education, “Perkins State Formula Grants,” n.d.; US Department of Labor, Employment and Training Administration, Training and Employment Guidance Letter No. 10-25, 2026; US Department of Education, Rehabilitation Services Administration, “Vocational Rehabilitation State Grants,” n.d.; and US Department of Labor, “Registered Apprenticeship Grants Performance Dashboard,” n.d.

78 Credential Engine, *Counting U.S. Postsecondary and Secondary Credentials*, 2022.

source in its annual survey, which shows that 45 percent of employers offer tuition assistance and 8 percent offer loan repayment assistance, with the average maximum subsidy around \$5,400. Employer educational assistance programs are tax-free under federal law up to \$5,250.⁷⁹

Despite these sizable investments, there are **data limitations** as well as limited evidence on the effectiveness of employer tuition subsidies and other programs, with few employers or other organizations formally reporting on their expenditures or measuring their return on investment. Still, companies and organizations that have conducted ROI studies report promising results,⁸⁰ and limited research shows that employer-sponsored education and training benefits have positive impacts on both credential completion and employee retention.⁸¹ Unfortunately, there is no centralized or publicly available data source to measure private investment in postsecondary education and workforce training at this time, although the US Census Bureau's Survey of Income and Program Participation (SIPP) includes some limited information at the national level. In the absence of national data, periodic and private surveys, such as the reports cited from Credential Engine and SHRM, can fill in some gaps.

Education: Are postsecondary education and workforce training systems producing enough skilled graduates to meet attainment goals?

As postsecondary leaders began to focus on raising undergraduate completion rates in the early 2000s, they leveraged newly available transfer and graduation data in IPEDS. However, they quickly found these data insufficient for setting and making progress toward improvement goals. The data were limited to traditional students, obscuring or omitting the experiences of part-time, transfer, low-income, and adult students, among others. Intermediary organizations—such as Achieving the Dream, Complete College America, and Voluntary Standards for Accountability—organized networks to help postsecondary leaders use their data and subsequently launched dozens of data collections that went beyond the metrics and disaggregations available in IPEDS.⁸² In 2016, the Institute for Higher Education Policy (IHEP) published a convergence metrics framework that drew on lessons learned across these initiatives;⁸³ that framework has now become a standard reference for many ongoing efforts,⁸⁴ including a common voluntary data collection for completion initiatives hosted by the National

79 SHRM, *2025 Employee Benefits Survey*, 2025; and IRS, “Employer-Offered Educational Assistance Programs Can Help Pay for College,” 2024.

80 Lumina Foundation, “The Case for Talent Investment,” 2020.

81 Tran and Smith, “The Impact of Employer-Sponsored Educational Assistance Benefits on Community College Student Outcomes,” 2017; and Flaherty, “The Effect of Employer-Provided General Training on Turnover,” 2007.

82 Engle, *Answering the Call*, 2016.

83 Janice and Voight, *Toward Convergence*, 2016.

84 See, for example, Complete College America, *Better Data, Better Decisions*, 2020.

Student Clearinghouse.⁸⁵ In this section of report, we reference several key metrics from IHEP’s metrics framework that serve as critical education outputs in the Postsecondary Value Model, including **access ratio**, **success rate**, **graduate enrollment and completion rates**, and **attainment rate**. We also cover current approaches to measuring **skills and competencies** as important outputs that can generate greater understanding of postsecondary value.

Access

Even as educational leaders shift their emphasis to postsecondary completion and value, they also recognize that limitations to postsecondary access for undergraduate students persist. Sustained attention to the problem of limited access is essential given ongoing disparities in enrollment rates,⁸⁶ considerable recent declines in enrollment numbers,⁸⁷ and the looming “demographic cliff” representing a precipitous drop in traditional-age students.⁸⁸ A number of initiatives use an **access ratio** for underserved student populations as a key metric in their assessments. By **definition**, this metric often measures the percentage of underserved students enrolled in an institution or program—usually by household income and race/ethnicity—divided by their percentage in the state or locality in which the institution or program operates. The Carnegie Student Access and Earnings classification recently codified this approach in its access metric for undergraduates at most colleges and universities nationwide, which it compares to an earnings metric to identify Opportunity Colleges and Universities that provide high access *and* result in high earnings.⁸⁹ Institutions might also define this metric to measure access in ways that are most relevant to their context, whether by focusing on first-generation status, geography, age, or other factors.

Data sources may include IPEDS surveys,⁹⁰ the Carnegie Student Access and Earnings Classifications, the National Student Clearinghouse, and/or state and institutional data systems; however, each of these sources has **data limitations**. IPEDS provides robust undergraduate and graduate enrollment data by race/ethnicity, but its enrollment data by economic status is limited to undergraduates receiving Pell grants or to household income for first-time, full-time undergraduates receiving Title IV aid. IPEDS data also lag two years behind the current academic year. To support more up-to-date assessments of access, ED could institute faster reporting of enrollment numbers by income for undergraduate and graduate Title IV recipients from the National Student Loan Data System (NSLDS) through the College Scorecard or the FSA Data Center. Although the National Student Clearinghouse (NSC) collects

85 National Student Clearinghouse, “Postsecondary Data Partnership,” n.d.

86 The Pell Institute for the Study of Opportunity in Higher Education, *Indicators of Higher Education Equity in the United States*, 2024.

87 US Department of Education, National Center for Education Statistics (NCES), Table 306.10 in *Digest of Education Statistics*, 2024.

88 Georgetown University, “The Perils of the Demographic Cliff,” 2025.

89 This measure also accounts for the extent to which students come from out of state to attend a given institution. Carnegie Classification of Institutions of Higher Education, “2025 Student Access and Earnings Classification,” n.d.

90 US Department of Education, National Center for Education Statistics (NCES), “IPEDS Survey Components,” n.d.

undergraduate and graduate enrollment data by race/ethnicity and using a proxy for income,⁹¹ they do not currently publish this information publicly by institution, nor do they cover all institutions. Therefore, states and institutions may have to rely on their student-level data systems for the most up-to-date and inclusive enrollment data. That said, it is reasonable to use IPEDS and the Carnegie Student Access and Earnings Classifications as data sources for this metric for undergraduate students, especially for comparisons to state populations and for benchmarking with other states and institutions. Carnegie itself uses demographic data from IPEDS and the US Census Bureau's American Community Survey (ACS) to compare to the demographics of institutions to those of their states.⁹²

The core federal workforce training programs under WIOA and Perkins are required to report the number of participants by key demographic characteristics, including income-related indicators, race/ethnicity, and disability status, among others. **Data sources** for this information are available from the US Department of Labor and the US Department of Education; these agencies most readily report this information by state, which can facilitate calculating the access ratio for these programs at the state level using ACS data from the US Census Bureau. But provider-level analysis may also be possible with WIOA data.⁹³

Success

Many completion initiatives focus on the **success rate** for undergraduates. For many initiatives, the **definition** of the success rate is the percentage of students who complete their credential or transfer to a longer credential program (upward transfer) within 100 to 200 percent time of on-time graduation. These initiatives further note that success rate metrics should include a complete cohort of students—full time and part time, and first time and transfer—over a 12-month period, and include annual measurement of success outputs (e.g., retention, persistence, transfer, completion) through the reporting period.⁹⁴ It is also worth noting that a growing number of stakeholders are using metrics that are related to success rates, such as credit accumulation and time to credential, in efforts to reduce the amount of time and money needed for students to succeed.⁹⁵ Later in this report, we discuss these types of metrics and their potential uses as levers for improving success rates to increase value.

91 NSC uses students' home addresses as a neighborhood proxy for socioeconomic status by geocoding addresses to census tracts and assigning each tract an income value from the American Community Survey.

92 Carnegie Classification of Institutions of Higher Education, "2025 Student Access and Earnings Classification," n.d.

93 US Department of Labor, Employment and Training Administration, "WIOA Performance Data Archive," n.d.; US Department of Labor, Employment and Training Administration, "WIOA Performance Data," n.d.; US Department of Education, Rehabilitation Services Administration, "WIOA Annual Reports," n.d.; and US Department of Education, Office of Career, Technical, and Adult Education, "Perkins Collaborative Resource Network Data Explorer," n.d. WIOA programs administered by the US Department of Labor and the US Department of Education also collect participant data at the individual level. Some of these data are available through de-identified public files hosted by DOL but others are only available through restricted use agreements.

94 Janice and Voight, *Toward Convergence*, 2016.

95 Offenstein et al., *Advancing by Degrees*, 2010; Belfield et al., *Early Momentum Metrics*, 2019; and Janice and Voight, *Toward Convergence*, 2016.

Data sources for success metrics may include IPEDS, the National Student Clearinghouse, and/or state and institutional data systems. Unfortunately, when it comes to collecting and reporting robust success metric data for undergraduate and graduate students, publicly available sources have not caught up to innovation in the field, resulting in **data limitations**. IPEDS's Graduation Rate Survey (GRS) continues to omit too many undergraduate students and outcomes, and while IPEDS's Outcome Measures (OM) survey addressed some of these issues in 2015, the survey still has considerable gaps, especially on transfer. For example, OM measures transfer only after eight years, does not specify transfer destination level, and does not indicate whether students transfer with an award, leaving unanswered questions about when, whether, and how students transfer between two-year and four-year institutions.⁹⁶ OM also doesn't disaggregate by race/ethnicity. Further, IPEDS does not include success rates for graduate students or by program.⁹⁷

ED could publish more robust retention, transfer, and completion rates for Title IV undergraduate and graduate students by household income and eventually by race/ethnicity using NSLDS, building on the rates they already publish through the Scorecard dataset but which are not widely known or used at this time. NSC also has this information for undergraduate and graduate students but doesn't make it publicly available at the institution or program level. Ultimately, states and institutions may need to rely on their own student-level data systems to produce more comprehensive success metrics on undergraduate and graduate students, supplemented with NSC data about students who enroll or transfer outside of their systems or states.

While most efforts to measure success rates have focused on undergraduate degree programs, workforce training programs also collect useful information about participants' outcomes. The core workforce training programs funded under WIOA—Adult, Dislocated Worker, Youth, Adult Education and Family Literacy, Employment Service, and Vocational Rehabilitation—are required to report success-related measures, though the reported measures differ from those reported on undergraduate programs to IPEDS. The **definition** of the WIOA credential attainment success measure includes the percentage of participants who earn a recognized postsecondary credential during participation in or within one year after exit from the program. WIOA programs report this measure by key participant characteristics such as income and race/ethnicity, and WIOA requires states to set performance goals on these and other measures related to employment and earnings.⁹⁸ On its consumer information site, the US Department of Labor reports a completion rate for WIOA program providers, which is defined as the percentage of all exited participants

96 The Tracking Transfer reports and dashboards from the Community College Research Center, the Aspen Institute, and the National Student Clearinghouse are useful resources for accurately measuring transfer out for students at two-year institutions and post-transfer success at four-year institutions. Velasco et al., *Tracking Transfer*, 2024.

97 While it would be feasible for IPEDS to collect success rates for graduate programs, calculating success rates by program level for undergraduates can be complicated by the fact that some students withdraw before declaring a major and others change majors. NSLDS can track when Title IV students declare and change programs, which makes it a potential source.

98 US Department of Labor, Employment and Training Administration, *WIOA Performance Indicators and Measures*, n.d.

who successfully completed the program,⁹⁹ though there are calls for reporting improved completion rate metrics for WIOA programs using the underlying individual-level data.¹⁰⁰ Perkins programs are also required to report on the percentage of postsecondary participants who attain a recognized postsecondary credential during participation in or within one year after exit from the program.¹⁰¹

Data sources for WIOA success measures include statewide performance metrics reported by WIOA program type available from the US Department of Labor¹⁰² and completion rates for specific WIOA providers available to the public through a consumer website.¹⁰³ For Vocational Rehabilitation and Perkins programs, the US Department of Education reports results by state and participant characteristics annually.¹⁰⁴ The newly authorized Workforce Pell program will also require states to assess the eligibility of potential providers by determining whether they have at least a 70 percent completion rate.¹⁰⁵

For some students, gaining access to and completing graduate education is also critical to achieving postsecondary success, especially in fields that recommend or require advanced degrees for employment. Ideally, **graduate education rates** would be available for every undergraduate program, with the **definition** being the percentage of undergraduate students from each cohort who enroll in and complete a graduate program within one, five, and ten years after graduation.¹⁰⁶ **Data sources** could include the NSC, NSLDS, and/or state or institutional data systems. Measuring graduate enrollment and completion rates for specific undergraduate programs and institutions is difficult, however, due to **data limitations**, especially in publicly available data. IPEDS does not currently collect or publish this information, reporting only the number of graduate students enrolled and the number of graduate degrees conferred at an institution. Neither NSC nor the College Scorecard publishes this information either, though both could produce graduate education rates by undergraduate institution and program for the students in their systems.¹⁰⁷ Much more information about graduate education is needed, especially given the considerable median debt incurred by students and recent reports of low to moderate completion rates in graduate programs.¹⁰⁸

99 US Department of Labor, Employment and Training Administration, "Training Provider Results," n.d.

100 Deming et al., *Navigating Public Job Training*, 2023.

101 US Department of Education, Office of Career, Technical, and Adult Education, "Indicators of Performance," n.d.

102 US Department of Labor, Employment and Training Administration, "WIOA Performance Data," n.d.

103 US Department of Labor, Employment and Training Administration, "Training Provider Results," n.d. De-identified, individual-level data by provider are also available for download and analysis at US Department of Labor, Employment and Training Administration, "WIOA Performance Data Archive," n.d.

104 US Department of Education, Rehabilitation Services Administration, "WIOA Annual Reports," n.d.; and US Department of Education, Office of Career, Technical, and Adult Education, "Perkins Collaborative Resource Network Data Explorer," n.d.

105 Whistle, "Workforce Pell Negotiated Rulemaking Recap," 2025.

106 Janice and Voight, *Toward Convergence*, 2016.

107 US Department of Education, "Technical Documentation," 2025. ED actually identifies students who are enrolled in graduate programs in NSLDS in order to remove them from the earnings data they publish for former undergraduates in the College Scorecard, but they don't publish the graduate enrollment rate.

108 Georgetown University Center on Education and the Workforce analysis of data from the US Department of Education, National Postsecondary Student Aid Study (NPSAS), 2020 (Graduate); Gulish et al., *Graduate Degrees*, 2024; and Denning and Turner, "The Graduation Part II," 2025.

Attainment of a credential of value depends first on access to postsecondary education and then on successful completion. Thus, postsecondary **attainment rate** is a critical measure in the Postsecondary Value Model. The general **definition** of the attainment rate is the percentage of working-age adults in the labor force who are not currently enrolled in postsecondary education and who have earned post-high school credentials. About 40 states now measure and set goals to improve their postsecondary attainment rates.¹⁰⁹ **Data sources** include the US Census Bureau's American Community Survey (ACS), which allows for measurement by state or locality, race/ethnicity, and other characteristics; sources like Lumina Foundation's annual *A Stronger Nation* report on postsecondary attainment rates rely on these data.¹¹⁰ A limitation of the ACS is that it does not report attainment data on certificates, certifications, and licensures, though there is some information on these types of credentials available from the Current Population Survey (CPS), SIPP, and the National Training, Education, and Workforce Survey (NTEWS), which Lumina Foundation uses along with IPEDS to estimate short-term credential attainment. These sources are discussed in more detail in the next section.

Learning

Credentials are important signals that students are prepared to enter the workforce.¹¹¹ However, credentials do not necessarily convey whether graduates have the **skills and competencies** needed to succeed in their jobs and beyond. A number of initiatives and assessments launched in the early 2000s to measure undergraduate students' learning outcomes. These include the Valid Assessment of Learning in Undergraduate Education (VALUE) rubrics created by the American Association of Colleges and Universities, the Council for Aid to Education's Collegiate Learning Assessment, and Territorium's E-Proficiency Profile and HEIghten Outcomes Assessment Suite, formerly administered by the Educational Testing Service.¹¹² In these initiatives and assessments, the **definition** of skills and competencies generally covers the proficiencies students are expected to demonstrate after completing a course of study. More specifically, the assessments tend to evaluate the percentage of students who demonstrate proficiency in general skills such as critical and creative thinking, written and oral communication, quantitative skills, digital literacy, interpersonal and intercultural skills, and professionalism.

109 Lumina Foundation, *States with Higher Education Attainment Goals*, 2024.

110 Lumina Foundation, "Educational Attainment in the United States," 2026.

111 Spence, "Job Market Signaling," 1973.

112 American Association of Colleges and Universities (AAC&U), "VALUE: Authentic Evidence of Student Learning," n.d.; Counsel for Aid to Education, "Performance-Based Assessments," n.d.; Territorium, "Demonstrate Higher Education Program Effectiveness," n.d.; and Territorium, "Demonstrate and Measure Critical Skills," n.d. See also the Next Generation Undergraduate Success Measurement project, which is piloting the use of surveys, performance assessments, administrative records, and learning management system data to longitudinally measure students' learning outcomes with new methods; University of California, Irvine, School of Education, "Next Generation Undergraduate Success Measurement Project," n.d.

These focus areas align broadly with the National Association of Colleges and Employers' Competencies for a Career-Ready Workforce framework and other assessments of general workforce skills.¹¹³ While thousands of institutions have used one or more of these assessments, and some publish their own results, no publicly accessible **data sources** with information on general skills and competencies exist at this time. Nevertheless, programs and institutions should continue to use the existing tools to help determine whether enough of their students can demonstrate the skills and competencies needed for successful employment.

Assessments geared toward measuring specific skills and competencies in particular fields, mostly focused on licensure or certification, are also helpful sources on learning outcomes. Earning a credential is not sufficient for employment in some fields, particularly health, education, law, finance, and some skilled trades (e.g., advanced manufacturing), which also require graduates to pass certification or licensure exams to demonstrate the specific skills and competencies learned in their programs. Other fields require licensure but not a postsecondary credential for employment, including some jobs in information technology, insurance, real estate, some trades (e.g., construction, transportation), health and wellness, and childcare.

Postsecondary graduates can also enhance their employability by attaining certifications, such as software or project management certifications, which are often administered by private companies or organizations but are generally preferred rather than required by employers. Innovative work is underway to collect and report data on certifications or licensures that are not directly connected to postsecondary institutions and programs, but this work is in early development.¹¹⁴ Here, we focus on programs at postsecondary institutions leading to occupations in which graduates need certifications or licensures to gain employment. These programs should be required by the US Department of Education to publicly report on **certification and licensure pass rates**. By **definition**, this metric should measure the percentage of program completers in a given year who obtain the relevant certificate or licensure within the required timeframe for their field.

Data sources may include a number of public and private entities, though no centralized data source exists and available sources are subject to **data limitations**. While ED requires institutions to report on programs' certification and licensure *requirements*, it does not collect data on certification or licensure pass rates by program, with the exception of teacher education programs.¹¹⁵ Some program accreditors do require programs (e.g., in nursing and law) to publicly report on certification or licensure

113 National Association of Colleges and Employers (NACE), *Competencies for a Career-Ready Workforce*, 2024. See also Carnevale et al., *Workplace Basics*, 2020; and ACT, "ACT WorkKeys Career Assessments," n.d.

114 See, for example, Credlens, "Delivering on the Promise of Education-to-Employment Opportunity by Advancing Non-Degree Credential Data," n.d.; and Credential Engine, "Making Credentials Transparent," n.d.

115 US Department of Education, Office of Postsecondary Education, *Financial Responsibility, Administrative Capability, Certification Procedures, Ability to Benefit (ATB)*, 2024; and US Department of Education, *2025 Title II Report*, 2025.

pass rates and/or require programs to meet specific pass rate thresholds,¹¹⁶ but many do not require such public reporting. Some state licensure boards publish program-level pass rates or lists of individuals with certifications or licenses for verification purposes.¹¹⁷ WIOA programs require states to report on the percentage of participants who demonstrate “measurable skill gains,” which may include passing an exam required for a particular occupation or showing progress attaining technical or occupational skills on knowledge-based exams.¹¹⁸

Some national-level information about certifications and licenses is available in the US Census Bureau’s Survey of Income and Program Participation (SIPP) and Current Population Survey (CPS), as well as in the National Science Foundation’s National Training, Education, and Workforce Survey (NTEWS). Credential Engine is developing a national registry of all credentials in the US, including certifications and licensures, though outcomes data is limited at this time.¹¹⁹ Companies like Lightcast and LinkedIn can extract this information from social media profiles, but these data are self-reported, focused on certain types of occupations and industries, and directed toward other uses (e.g., marketing of one’s skills). Given the time and expense that students invest in attaining these credentials, especially through costly professional degree programs, certification and licensure pass rates need to be much more accessible to both policymakers and the public.

Employment: Are postsecondary education and training credentials appropriately aligned with workforce needs to support graduates’ transitions into quality jobs and career pathways?

In public opinion polls, students frequently cite increasing their employment prospects and increasing their potential income as their top reasons for pursuing a postsecondary credential.¹²⁰ Recent graduates also stress that they want a job that offers stability, benefits, and the opportunity to continue developing their skills to support advancement, all of which they rate as more important than salary—though 60 percent still want a high starting salary.¹²¹ Obtaining quality employment is a critical early outcome in the Postsecondary Value Model, and it affects graduates’ earnings potential over the course of their lifetimes.¹²² This section focuses on metrics related to students

116 Accreditation Commission for Education in Nursing (ACEN), “Licensure/Certification Pass Rate,” 2025; and American Bar Association, “Statistics,” n.d.

117 Peterson et al., *A Snapshot of State Practices and Plans for Collecting Industry and Certification Data*, 2024.

118 US Department of Labor, Employment and Training Administration, “WIOA Performance Indicators and Measures,” n.d.

119 Credential Finder, “Discover Credentials,” n.d.; and Credential Engine, *Counting U.S. Postsecondary and Secondary Credentials*, 2022.

120 Gallup and Lumina Foundation, *The State of Higher Education 2025*, 2025.

121 National Association of Colleges and Employers (NACE), “The Top Attributes New College Graduates Are Looking for in a Job,” 2025.

122 Scott-Clayton et al., *Who Rides Out the Storm?*, 2025; and Schwandt, *Recession Graduates*, 2019.

getting jobs (**job placement rate**) and the quality of those jobs (**job benefits, job advancement, job engagement**). It also focuses on measuring alignment between students' credentials and workforce needs in their geographic areas (**workforce alignment**), which can improve employment outcomes for graduates while supporting local and state economies.

Employment

First and foremost, students want to know if their postsecondary credential will lead to a job. Some states such as Florida and Tennessee address this question by measuring **job placement rates** by institution and program;¹²³ all states report job placement or employment rates for participants in WIOA federal training programs. By **definition**, job placement metrics typically measure the percentage of former participants employed within six months to one year after exit.¹²⁴ Many students also want to know specifically if they will get a job in their chosen field after graduation. Measurement of job placement rates within field is currently less common than measurement of job placement rates more generally due to data availability issues, notably the lack of occupation data in most states' wage record systems.¹²⁵ However, some states, such as Arkansas, Louisiana, and Texas, are measuring whether students get jobs in high-demand fields as part of their assessments of whether institutions and programs are producing credentials with labor-market value for funding and accountability purposes.¹²⁶ A related metric, underemployment, can provide some indication of whether students are gaining entry to the jobs they prepared for by measuring whether they are overqualified in terms of the education requirements, though measurement of underemployment can be difficult.¹²⁷

Data sources on employment are available at the federal and state levels, but with a number of **data limitations**. Job placement rates are not widely available to the public for undergraduate and graduate programs since programs that receive Title IV funds are not required to report job placement rates to ED. While the newly authorized Workforce Pell grant includes the job placement rate in its program eligibility measures, it is not yet clear whether or where this information will be published, though states are responsible for collecting and verifying this information for ED.¹²⁸ However, the earnings cohort information available in the College Scorecard dataset does allow for calculation of a related employment metric at both the institution and program levels. By dividing the number of students who are working and not enrolled by the total number of students in the earnings cohort, stakeholders can calculate an employment rate for the cohort. The information necessary for this calculation is available

¹²³ Carroll, *Investing in Value*, 2025.

¹²⁴ National Association of Colleges and Employers (NACE), "First Destinations for the College Class of 2023," n.d.; Carroll, *Investing in Value*, 2025; and US Department of Labor, Employment and Training Administration, "WIOA Performance Indicators and Measures," n.d. Six months also aligns with the grace period for starting loan repayment after graduation or exit; US Department of Education, Federal Student Aid, "Student Loan Repayment," n.d.

¹²⁵ Hanson, "What States Should Know About Education and Work—But Don't," 2025.

¹²⁶ Carroll, *Investing in Value*, 2025.

¹²⁷ Strohl et al., *Rethinking Underemployment*, 2026.

¹²⁸ Whistle, "Workforce Pell," 2025.

at: (1) six, eight, and ten years after initial enrollment for undergraduates at the institutional level; (2) one and five years after graduation at the institutional level for undergraduates; and (3) one and five years after graduation at the program level for both undergraduate and graduate students. It should be noted that the College Scorecard has not updated these metrics recently.¹²⁹

Job placement data are more readily available for workforce training programs. The US Department of Labor requires WIOA programs to report the percentage of participants who are employed at six months and one year after exit; the department then reports these data publicly at the provider, state, and WIOA program levels.¹³⁰ ED also requires states to report on whether Perkins participants are employed, enrolled in further education, or engaged in military or other service six months after program completion.¹³¹ WIOA and other programs often use the Unemployment Insurance (UI) systems in their states to collect information on participants' post-program employment and earnings.

States can also use information available in the State Wage Interchange System (SWIS) for WIOA and some other workforce training participants who move out of state, though accessibility and usage varies.¹³² A complementary system, the Federal Employment Data Exchange System (FEDES), has been suspended since 2018, which means that states no longer have access to employment and earnings data on federal employees, creating an information gap for these workers along with self-employed workers and members of the military who are also missing in UI systems.¹³³

States using their statewide longitudinal data systems (SLDSs) and UI systems to measure job placement rates for both postsecondary and workforce training programs must deal with several limitations, including that these systems are often limited to public programs and participants employed in the state. States can leverage resources like the Coleridge Initiative to gain access to employment outcomes for students who move out of state, though not all states currently participate.¹³⁴ A growing number of states are also undertaking efforts to enhance wage records in their UI systems by collecting information on occupation in addition to industry, which would help

129 The College Scorecard data do not facilitate calculation of unemployment rates since it is not known whether the students in the earnings cohorts who are not working and not enrolled intend to participate in the workforce. There is also significant suppression of program-level results due to small cohort sizes. In addition, data related to many College Scorecard metrics have not been updated recently despite previously planned updates. US Department of Education, "College Scorecard," n.d.

130 US Department of Labor, Employment and Training Administration, "WIOA Performance Indicators and Measures," n.d.; and US Department of Labor, Employment and Training Administration, "Training Provider Results," n.d.

131 US Department of Education, Office of Career, Technical, and Adult Education, "Indicators of Performance," n.d.

132 SWIS replaced the prior systems developed for this purpose, the Wage Record Interchange Systems (WRIS and WRIS 2). US Department of Labor, Employment and Training Administration, "State Wage Interchange System (SWIS)," n.d.

133 US Department of Labor, Employment and Training Administration, "Federal Employment Data Exchange System (FEDES)," n.d.

134 Coleridge Initiative, "Multi-State Postsecondary Dashboard," n.d.

clarify whether graduates obtain jobs in their fields.¹³⁵ Further, the Workforce Pell regulations note that states will have a phase-in period to assess whether program participants are gaining employment tied to specific occupations, which may motivate states to improve their wage records.¹³⁶

Job Quality

While important, job placement or employment rates alone do not provide enough information about the quality of employment. For instance, job placement rates do not typically measure whether graduates are in low-wage jobs with no benefits or in jobs that do not offer opportunities for advancement. In the past five years, several initiatives have attempted to address this issue by developing and defining metrics to measure job quality; these initiatives include the Job Quality Measurement Initiative,¹³⁷ the Job Quality Action Plan,¹³⁸ and Building America's Workforce (which includes Job Quality and Workplace Standards).¹³⁹ These initiatives have developed frameworks to measure dimensions of job quality such as compensation, benefits, working conditions, employment stability, advancement, and organizational culture.¹⁴⁰ Some frameworks also include employee satisfaction, engagement, and voice.¹⁴¹ While all of these metrics are relevant, **job benefits** and **job advancement** are particularly important for increasing the value of postsecondary credentials; both can affect other value-related metrics such as wealth and well-being.

In these frameworks, by **definition**, job benefits metrics often measure the percentage of former students or workers by credential level with health, disability, and life insurance; retirement plans, and paid leave policies. Job advancement metrics often include the percentage of former students or workers by credential level who have received educational benefits, professional development and training, and promotions. **Data sources** for these metrics primarily include federal surveys, but may also include private surveys and proprietary data sources. There are, however, **data limitations**, with few data sources available at the institution or program level.

The Urban Institute mapped the availability of job benefits metrics in federal data collections and found that the US Bureau of Labor Statistics (BLS) collects data on health insurance, retirement benefits, and other benefits such as disability insurance and leave at the national level in the National Compensation Survey (NCS). The US Census Bureau also collects health insurance and retirement benefits data

135 Efforts to enhance wage records also include adding number of hours, hourly wage, location, and other elements. Hanson, *What States Should Know About Education and Work—But Don't*, 2025.

136 Whistle, "Workforce Pell Negotiated Rulemaking Recap," 2025.

137 Families and Workers Fund, *Reimagining Job Quality Measurement*, 2022.

138 Jobs for the Future, *The American Job Quality Study 2025*, 2025.

139 Urban Institute, "Building America's Workforce," n.d.

140 Jobs for the Future, "Job Quality Matters," n.d.; Katz et al., *Measuring Job Quality*, 2022; Gallup, "Lumina Foundation, Gates Foundation and Omidyar Network Tell Full Story of U.S. Job Quality," n.d.; and Aspen Institute, "Good Jobs Champions Group," n.d.

141 Marken, *Ensuring a More Equitable Future*, 2021; Jobs for the Future, *The American Job Quality Study 2025*, 2025; Aspen Institute, "Good Jobs Champions Group," n.d.; and Urban Institute, "Building America's Workforce," n.d.

at both the national and state levels in the Annual Social and Economic Supplement (ASEC) of the Current Population Survey, as well as more limited information in the American Community Survey.¹⁴² Federal data sources contain little information about job advancement, though, aside from some limited data on employer-provided training collected by the Survey of Income and Program Participation (SIPP). The ASEC also provides data at the national and state levels to assess occupational change, which could measure advancement when also examining earnings.¹⁴³ Private employer surveys such as the Society for Human Resource Management's (SHRM's) annual survey collect metrics on job benefits and advancement, but this information is typically unavailable at the institution or program level unless institutions or programs survey their alumni.

New methods are emerging to measure elements of job quality like job benefits and job advancement, however. Education Quality Outcome Standards (EQOS), a nonprofit organization, is piloting a new way to measure the quality of non-degree credentials using public and proprietary data to trace workers' employment histories back to their credentials and providers, without collecting data directly from the providers. The EQOS model measures access to job benefits and changes in benefits across employers; it also measures job advancement by measuring time to promotion and number of promotions up to five years after completion.¹⁴⁴ The Burning Glass Institute, a partner with Jobs for the Future in EQOS, uses similar measures and methodology to assess job outcomes for non-degree credentials with its new Credential Value Index (CVI), which is publicly available.¹⁴⁵ Both of these efforts rely on Lightcast data, use of which is expanding in the field, but additional information is needed about the coverage and assumptions in these data.

Beyond benefits and advancement, **job engagement** or satisfaction is an important nonmonetary measure of the value of a postsecondary credential. Job engagement is related to the purpose that individuals may derive from their work. These metrics—job engagement and purpose—may be of particular interest for occupations with high social value but lower pay, such as some healthcare, social work, and education occupations. Gallup has developed measures of job engagement and purpose in various surveys. Their **definition** of job or employee engagement is “the involvement and enthusiasm of employees in their work and workplace” and their definition of purpose is “liking what you do each day and being motivated to achieve your goals.”¹⁴⁶ **Data sources** about job engagement come from private surveys, which measure the percentage of workers experiencing engagement and purpose and to what degree. Gallup's Alumni Survey, for example, includes questions about employee engagement and purpose; institutions and programs can administer

142 Katz et al., *Measuring Job Quality*, 2022.

143 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

144 Spitze et al., *EQOS Signal of Quality*, 2024.

145 Burning Glass Institute, “The Credential Value Index,” n.d.

146 Gallup, “The Q¹²,” n.d.; Gallup, “Indicators,” n.d.; and Marken, *Ensuring a More Equitable Future*, 2021.

this survey to their former students or graduates.¹⁴⁷ Gallup has found that people with postsecondary credentials are more likely to report being engaged and finding purpose in their work, and graduates who report this are more likely to report that their credential was worth the cost.¹⁴⁸ The **data limitations** inherent in relying on alumni surveys include not having a publicly available source for this information and response bias that may skew who responds to the surveys.

Workforce Alignment

Graduates who report that their coursework was highly relevant to their current job also strongly agree that their credential was worth the cost.¹⁴⁹ To maximize graduates' potential to get quality jobs and to meet states' and localities' needs for qualified workers, it is important to measure **workforce alignment**. By **definition**, workforce alignment metrics measure the percentage of postsecondary and workforce training credentials conferred (supply) that align with labor market needs (demand) in an area. The granularity of both the education and the workforce analyses depend on the available **data sources**, which can include local, state, federal, and proprietary datasets. The Georgetown University Center on Education and the Workforce (CEW) uses a number of federal sources, as well as some proprietary sources, to publish national and state job demand projections and associated educational requirements across industries, occupational clusters, and detailed occupational groups, with the latest projections showing that 72 percent of jobs will require postsecondary education or training by 2031.¹⁵⁰

Many researchers and analysts use the IPEDS Completions survey to measure the supply of postsecondary credentials produced annually at the national, state, and local levels based on the number of certificates, associate's, bachelor's, and graduate degrees conferred by program of study. However, IPEDS does not include non-credit credentials or "non-degree" credentials that are not awarded by postsecondary institutions. WIOA programs report on the types of credentials received by participants, which include occupational licensure, certification, and certificates, as well as the program of study using the Classification of Instructional Programs (CIP).¹⁵¹ Perkins programs also report some data on type of postsecondary credential attained, including certificates.¹⁵² Both WIOA and Perkins programs are further required to submit state plans that analyze the labor-market needs in their states, including high-demand industries and occupations, to demonstrate alignment with their program offerings.¹⁵³

147 Gallup, "Measuring College and University Outcomes," n.d.

148 Marken, *Ensuring a More Equitable Future*, 2021.

149 Marken, *Ensuring a More Equitable Future*, 2021.

150 Carnevale et al., *After Everything*, 2023.

151 US Department of Labor, Employment and Training Administration, "WIOA Participant Individual Record Layout (PIRL)," n.d.

152 US Department of Education, Office of Career, Technical, and Adult Education, "Perkins Collaborative Resource Network Data Explorer," n.d.

153 US Department of Labor, Employment and Training Administration, "State Performance," n.d.; and US Department of Education, Office of Career, Technical, and Adult Education, "State Plans," n.d.

To examine the alignment between supply and demand, researchers and analysts typically use the Classification of Instructional Programs–Standard Occupational Classification (CIP-SOC) crosswalk produced by the Bureau of Labor Statistics and the National Center for Education Statistics, which matches postsecondary programs of study that provide graduates with specific skills and knowledge to the occupations requiring them.¹⁵⁴ However, there are **data limitations** with this crosswalk since it produces a “many-to-many” relationship between most programs of study and occupations that can be difficult to interpret in practice. This relationship is also not based on empirical data that demonstrate the actual—and varied—education-to-career pathways that graduates take into the workforce, and it is not updated frequently enough to keep pace with emerging changes in the labor market. The US Census Bureau’s American Community Survey does include both major and occupation for workers with bachelor’s degrees only, which can support alignment analysis at the state level, though this information is not available for sub-baccalaureate or graduate credentials.¹⁵⁵

To overcome these limitations with federal data and crosswalks, researchers and analysts—especially those in state labor and workforce agencies—must make adjustments to the supply, demand, and crosswalk data to measure workforce alignment in their area. CEW recently released a report using a new methodology to show that in half of labor markets across the country, at least 50 percent of middle-skills credentials—certificates and associate degrees—would need to be granted in different fields of study for the credentials awarded to align with projected labor demand.¹⁵⁶ Some states augment their supply-and-demand data with local and real-time labor-market information, such as job postings and recent hires, to determine whether enough postsecondary credentials are being conferred to fill high-demand and essential occupations. Florida has created a credentials of value list that defines these credentials in large part based on high demand and high wages.¹⁵⁷ The US Department of Labor provides additional resources to support states with assessing supply and demand through Labor Market Information (LMI) Central.¹⁵⁸ Relatedly, the Harvard Project on Workforce produced a national College-to-Jobs map with drill-down capabilities to measure alignment between postsecondary credentials and job openings using Lightcast data.¹⁵⁹

Beyond credential alignment, interest is also growing in the alignment between the skills and competencies conferred by postsecondary credentials and the skills and competencies required by

154 The crosswalk matches six-digit codes from the 2020 Classification of Instructional Programs (CIP) with six-digit detailed descriptions from the 2018 Standard Occupational Classification (SOC). US Department of Education, National Center for Education Statistics (NCES), “CIP SOC Crosswalk,” n.d.

155 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

156 Strohl et al., *The Great Misalignment*, 2024.

157 Education Strategy Group, *Florida Credential of Value Workgroup Report*, 2022.

158 WorkforceGPS, “LMI Central,” n.d.

159 Harvard Kennedy School Malcolm Weiner Center for Social Policy and the Project on Workforce, *The College to Jobs Map*, n.d.

the labor market. As part of its registry, Credential Engine is mapping skill and competency frameworks to postsecondary credentials on the supply side, while companies like Lightcast and Steppingblocks are extracting skills from job postings on the demand side, though more transparency is needed on coverage and methodology for proprietary sources.¹⁶⁰ The National Labor Exchange (NLx) partnership, a nonprofit collaboration between employers and state workforce agencies to collect and share job openings publicly, is working with researchers to extract skill requirements from these postings to inform alignment work in the field.¹⁶¹

Earnings: Are postsecondary education and training credentials providing sufficient economic benefit to graduates to justify private and public investments?

While earnings are clearly not the only measure of whether credentials have value, they are an important indicator for students, policymakers, and the public. Students cite increasing their earnings potential as one of their top reasons for pursuing—and paying for—postsecondary education.¹⁶² As earnings data have become more readily available, an important question has emerged: Are students earning enough with their credentials? This question differs from the question of which students are earning the most, which might lead to only highlighting institutions and programs that are highly selective, highly resourced, or specialized in high-paying fields. Thus, this section will focus on metrics that measure whether students are earning enough to recoup their investment in postsecondary education (**return on investment**), realize meaningful earnings gains (**earnings growth**, **earnings sufficiency**, **earnings premium**), and/or experience economic mobility (**economic mobility rate**). It is important to assess these earnings levels for both those who complete their credentials and those who do not, especially since the latter group may incur debt without realizing the full financial benefits of holding a credential.

The economic thresholds used by education, policy, and organizational leaders vary widely, so it is useful to consider how these different thresholds relate to one another in order to support coherence in the field. One threshold is **earnings growth**¹⁶³ as measured by pre-post earnings; this (generally low) threshold is especially popular in the context of short-term training programs. **Earnings sufficiency** metrics go further by measuring whether former students are earning enough to meet their basic needs (e.g., 150 percent of the poverty level) or to experience a minimum premium over the earnings of a

160 Credential Finder, “Discover Credentials,” n.d.; Lightcast, *Skills Mismatch*, n.d.; and Steppingblocks, “Our Data,” n.d.

161 NLx Research Hub, “NLx Research Hub,” n.d.; George Washington University, LAISER, “LAISER,” n.d.; and Meisenbacher et al., “Extracting ONET Features from the NLx Corpus to Build Public Use Aggregate Labor Market Data,” 2025.

162 Gallup and Lumina Foundation, *The State of Higher Education 2025*, 2025.

163 Earnings growth is also measured beyond pre-post earnings to consider earnings trajectories at specific periods such as early career or over the lifespan.

comparison population like high school graduates.¹⁶⁴ **Return on investment** metrics go further still by measuring whether former students are earning enough to experience a minimum earnings premium over the earnings of a comparison population *and* enough to recoup their costs within a reasonable timeframe. **Economic mobility** measures whether former students from low-income households are earning enough to enter the middle class and beyond. Finally, **earnings premium** metrics measure whether former students are earning what they expect to earn in their fields and/or at their credential level; earnings premium thresholds ideally exceed the thresholds associated with the preceding metrics. While the earnings premium threshold in some fields—especially in higher-social value, lower-paying fields—may not exceed the other thresholds, it is important for education, policy, and organizational leaders to design protections for students in these lower-paying fields, especially related to affordability. Likewise, these leaders need to hold institutions accountable when students in high-paying fields reach their earnings premium but do not achieve an ROI because of high costs at their specific program or institution.

Return on Investment

ROI Metrics

The conversation on postsecondary value has focused significant attention on **return on investment (ROI)**, or whether students are earning enough to recoup the costs of their credentials. A considerable amount of work has been done in the past five or more years to develop and test measures related to return on investment. The work cited here focuses primarily on the ROI associated with undergraduate programs, though there is an emerging focus on graduate programs and non-degree programs as well.¹⁶⁵ Using a basic **definition**, return on investment metrics capture cumulative median earnings for former students minus cumulative median comparison earnings minus cumulative average net costs over a specified time period after entry or exit. This basic definition may also be expressed as an annualized metric that measures annual median earnings for former students minus annual median comparison earnings minus amortized cumulative average net costs in a given year after entry or exit.

Specific ROI metrics may differ in terms of which cost or debt measures they use (i.e., direct costs, living costs, and/or opportunity costs or debt), whether they measure at the program

¹⁶⁴ The new earnings accountability measures in OBBBA are earnings sufficiency metrics that compare graduates' earnings to those of high school graduates or bachelor's degree recipients. The metric used by Lumina Foundation for its new Credentials of Value goal is also an earnings sufficiency metric that measures whether credential holders experience at least a 15 percent premium over high school graduates. US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026; and Lumina Foundation, "Introducing the Credentials of Value Goal," 2026.

¹⁶⁵ The One Big Beautiful Bill Act included graduate programs in its accountability earnings measures, though these measures do not include costs. US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026; and Etier and Desjean, "Deep Dive," 2026. Private efforts such as those of the Burning Glass Institute have focused on non-degree programs; see Burning Glass Institute, "The Credential Value Index," n.d.

and/or institutional level, whether they include completers and/or noncompleters, and the thresholds and timeframes they use for assessment. For example, some ROI metrics measure only students' earnings above their net costs or debt, while others also measure earnings over the earnings of high school graduates or the costs of basic living expenses in addition to net costs. The ROI metrics also differ in how they express the output of the calculation, with some measuring the difference between cumulative investment and cumulative lifetime earnings (e.g., Georgetown University Center on Education and the Workforce, the Foundation for Research on Equal Opportunity, College Board);¹⁶⁶ some amortizing the cumulative investment to compare to earnings in a given year (e.g., Postsecondary Value Commission);¹⁶⁷ some calculating the number of years to recoup the cumulative investment (e.g., Third Way);¹⁶⁸ and some calculating the percentage of former students who reach ROI (e.g., State Opportunity Index, Postsecondary Value Commission).¹⁶⁹ Although the US Department of Education is no longer using the debt-to-earnings ratio, we continue to believe that it can be a useful measure for researchers who focus on debt when constructing ROI metrics.¹⁷⁰ Table 3 compares several ROI metrics in wide usage in the field; a printable version of the table is available at [this link](#).

166 Cheah et al., *Ranking 4,600 Colleges by ROI (2025)*, 2025; Pender et al., *Education Pays 2026*, 2026; and Cooper, *Does College Pay Off?*, n.d.

167 Postsecondary Value Commission, *Equitable Value*, 2021. Texas and Colorado use a variation on this methodology by calculating cumulative net costs and cumulative earnings within 10 years after completion and 15 years after entry, respectively. Cox and Liu, *Credentials of Value*, 2025; and Colorado Department of Higher Education, *Colorado Minimum Value Threshold*, 2024.

168 Itzkowitz, *Price-to-Earnings Premium*, 2020.

169 Postsecondary Value Commission, *Equitable Value*, 2021; and Strada Education Foundation, "State Opportunity Index Appendix," October 2025.

170 This study uses debt by creating a debt-adjusted earnings measure that subtracts student loan payments, but the results are not available at the institution or program level. Zhang et al., "College Is Still Worth It, Even with Student Debt, but We Can Do Better," 2025.

TABLE 3. Comparing Return on Investment Metrics

Entity	US Department of Education (former GE/FVT) ¹⁷¹	US Department of Education (Workforce Pell Grant)	Postsecondary Value Commission	Third Way	State Opportunity Index	Georgetown University Center on Education and the Workforce	Foundation for Research on Equal Opportunity	Postsecondary Commission
Metric name	Debt-to-earnings ratio ¹⁷²	Value-added earnings ¹⁷³	Minimum economic return (Threshold 0) ¹⁷⁴	Price-to-earnings premium ¹⁷⁵	Return on investment ¹⁷⁶	Return on investment ¹⁷⁷	Return on investment ¹⁷⁸	Minimum value-added earnings ¹⁷⁹
Metric type	Earnings above debt and basic living costs	Earnings above cost and basic living costs	Earnings above cost and comparison earnings	Earnings above cost and comparison earnings	Earnings above cost and comparison earnings	Earnings above cost and comparison earnings	Earnings above cost and comparison earnings	Earnings above cost and comparison earnings
Question	Are graduates earning enough to repay their debt within a reasonable timeframe after accounting for basic living costs?	Are graduates earning more than their tuition and fees after accounting for basic living and regional costs?	Are former students earning more than high school graduates in their state and enough to recoup their costs within 10 years?	How many years does it take for former students to earn more than a high school graduate in their state and enough to recoup their costs?	Are credential holders earning more than high school graduates in their state and enough to recoup their costs within 10 years?	Are former students earning more than workers with lower attainment levels in their state and enough to recoup their costs within 10 years after exit or 15 years after enrollment?	Are former students earning more than workers with lower attainment levels and enough to recoup their costs over their lifetime?	Are former students earning more than high school graduates in their state and enough to recoup their costs in a reasonable timeframe?

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171 In this table, “former GE/FVT” refers to the US Department of Education’s former Gainful Employment (GE) and Financial Value Transparency (FVT) regulations, which were superseded by regulations in the One Big Beautiful Bill Act (OBBBA).

172 US Department of Education, Federal Student Aid, “Regulatory Requirements for Financial Value Transparency and Gainful Employment (Updated Sept. 16, 2024),” 2024.

173 US Department of Education, *Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Pell Grant Exclusion Relating to Other Grant Aid; and Workforce Pell Grants*, 2026.

174 Postsecondary Value Commission, *Equitable Value*, 2021.

175 Rounds, *2023 Price-to-Earnings Premium for Four-Year Colleges*, 2023; and Itzkowitz, *Price-to-Earnings Premium*, 2020.

176 Strada Education Foundation, “State Opportunity Index Appendix,” October 2025.

177 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

178 Cooper, *Higher Education’s Return on Investment*, n.d.

179 Postsecondary Commission, *Standards Compliance Guidance*, 2025; and Postsecondary Commission and Mathematica, *Texas Statewide Study of Postsecondary Value-Added Earnings*, 2026.

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Entity	US Department of Education (former GE/FVT) ¹⁷¹	US Department of Education (Workforce Pell Grant)	Postsecondary Value Commission	Third Way	State Opportunity Index	Georgetown University Center on Education and the Workforce	Foundation for Research on Equal Opportunity	Postsecondary Commission
Metric definition	Annual loan payment on cumulative median debt plus interest for graduates divided by annual median earnings OR annual median discretionary earnings (annual median earnings minus 150 percent of the federal poverty level for an individual) ¹⁸⁰	Annual median earnings for graduates adjusted for region minus 150 percent of the federal poverty level minus total tuition and fees ¹⁸¹	Annual median earnings for former students minus annual median high school earnings in state minus (cumulative average net total costs divided by 10 years)	Cumulative average net total costs divided by (annual median earnings for former students minus annual median high school earnings in state)	The percentage of 25-to-34-year-olds with associate's and bachelor's degrees in a state with (cumulative individual earnings minus cumulative median high school earnings in state over 10 years) greater than cumulative average net total costs	Cumulative median earnings for former students minus cumulative median earnings for workers at lower attainment levels in state minus cumulative average net direct and opportunity costs within 10 years after exit or 15 years after enrollment	Cumulative median lifetime earnings for former students minus cumulative median lifetime earnings for workers at lower attainment levels minus cumulative average net direct costs Former student and comparison earnings are statistically adjusted for student, program, institutional, geographical, and labor-market characteristics	Cumulative earnings for former students minus cumulative earnings for high school graduates in state minus cumulative net direct costs over evaluation period Comparison earnings are statistically adjusted for student, institution, and geographic characteristics to match former students' profiles and include opportunity costs because they start measurement at entry
Investment definition	Cumulative median federal and private debt upon completion divided by 10, 15, or 20 years based on level of program to amortize into an annual payment Also adds average interest rate based on the length of the program to calculate the annual payment	Total published tuition and fees for the programs, which are short term in nature (8–14 weeks)	Cumulative average total net cost: (Annual average direct and living costs minus annual average grant aid) multiplied by estimated or actual time to credential, which is divided by 10 years to amortize into an annual repayment or recoup amount Adds estimated interest to the cumulative average net total cost assuming all students borrow to cover costs	Cumulative average net total cost: (Annual average direct and living costs minus annual average grant aid) multiplied by expected time to credential for on-time completion for the credential length	Cumulative average net total cost: (Annual average direct and living costs minus annual average grant aid) multiplied by expected time to credential for on-time completion for the credential length Adds estimated interest to the cumulative average net total cost assuming all students borrow to cover costs	Cumulative average net direct and opportunity costs: (Annual average direct costs for full-time students plus annual average opportunity costs for full-time students while enrolled) multiplied by percent FTE enrollment and multiplied by the median time of enrollment plus cumulative interest on student loan debt adjusted for inflation and the percentage of students receiving loans	Cumulative net direct cost: (Annual average tuition, fees, books, and supplies minus annual average grant aid) multiplied by estimated time to credential or exit	Cumulative net direct cost: (Annual tuition, fees, books, and supplies minus annual grant aid) multiplied by enrolled time to credential or exit

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180 Annual loan payments are calculated using the average interest rate and cumulative debt, amortized over 10 years for certificates and associate's degrees, over 15 years for bachelor's degrees and master's degrees, and over 20 years for doctoral and first professional degrees.

181 Median annual earnings are adjusted using the US Bureau of Economic Analysis's Regional Price Parities (RPP) unless more than 50 percent of the students in the program are from out-of-state, in which case calculations would use national median annual earnings instead.

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Entity	US Department of Education (former GE/FVT) ¹⁷¹	US Department of Education (Workforce Pell Grant)	Postsecondary Value Commission	Third Way	State Opportunity Index	Georgetown University Center on Education and the Workforce	Foundation for Research on Equal Opportunity	Postsecondary Commission
Completion status	Calculated for completers but can be calculated for non-completers or total depending on data source and use	Calculated for completers receiving Pell Grants but can be calculated for noncompleters or total depending on data source and use	Calculated for all entrants but can also be calculated for completers or noncompleters depending on data source and use	Calculated for all entrants but can also be calculated for completers or noncompleters depending on data source and use	Calculated for 25-to-34-year-olds with associate's and bachelor's degrees in a state	Recommends calculating for former students including completers and noncompleters	Calculated for completers and noncompleters, with total ROI weighted based on time to completion or exit	Calculated for all entrants to incentivize increased completion rates
Earnings definition	Annual median earnings after 3 years for graduates who are not enrolled in another program	Annual median earnings for graduates who received a Pell Grant and are working	Annual median earnings 10 years after entry for former students who are nonenrolled workers with positive earnings	Annual median earnings 10 years after entry for former students who are nonenrolled workers with positive earnings	Cumulative individual earnings over 10 years for 25-to-34-year-olds with associate's and bachelor's degrees working full-time, full-year in a state using synthetic cohorts	Cumulative median earnings for former students who are in the workforce and are not enrolled	Cumulative lifetime median earnings for former students who are non-enrolled US citizen workers with earnings above \$12,000 per year	Cumulative earnings for former students through the evaluation period
Comparison earnings definition	Subtracts 150 percent of the federal poverty level from median earnings for graduates to account for basic living costs	Subtracts 150 percent of the federal poverty level from median earnings for graduates to account for basic living costs Also adjusts median earnings for graduates based on regional costs	Median earnings for high school graduates who are nonenrolled workers with positive earnings ages 22–40 in the same state as the institution	Median earnings for high school graduates who are nonenrolled workers with positive earnings ages 25–34 in the same state as the institution	Cumulative median earnings over 10 years for 25-to-34-year-old high school graduates working full-time, full-year in a state Individual comparisons are matched by age within the 25–34 age range	Undergraduate: Cumulative median earnings for high school graduates who are in the workforce and are not enrolled in the state or local region matching the ages of former students or 25–34 years old if not available Graduate: Cumulative median earnings for people with bachelor's degrees in the same broad field of study who are in the workforce, not enrolled, and in the state or local region	Undergraduate: Cumulative lifetime median earnings for people with a high school diploma or less than 1 year of college who are nonenrolled US citizen workers with earnings above \$12,000 Graduate: Cumulative lifetime median earnings for people with bachelor's degrees who are nonenrolled US citizen workers with earnings above \$12,000	Cumulative median earnings for matched comparison group of high school graduates in state

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Entity	US Department of Education (former GE/FVT) ¹⁷¹	US Department of Education (Workforce Pell Grant)	Postsecondary Value Commission	Third Way	State Opportunity Index	Georgetown University Center on Education and the Workforce	Foundation for Research on Equal Opportunity	Postsecondary Commission
Metric level	Calculated at the program level but can be calculated at the institutional level depending on data source and use	Calculated at the program level but can be calculated at the institutional level depending on data source and use	Calculated at the institutional level but can be calculated at the program level depending on data source and use	Calculated at the institutional level but can be calculated at the program level depending on data source and use	Calculated at the population level for states	Recommends calculating at the program and institutional levels, but notes that program level can likely only be calculated from exit not entry due to data limitations	Calculated at the program level but can be calculated at the institutional level depending on data source and use	Calculated at the institutional and program levels
Metric threshold	Debt-to-earnings ratio cannot be greater than 20 percent of annual median discretionary income and 8 percent of annual median income	Remaining earnings must be greater than \$0 for the program to be eligible for the Workforce Pell Grant program	Remaining earnings should be equal to or greater than \$0 to recoup costs within 10 years	Result should be equal to or greater than 0 years to recoup costs	The percentage of credential holders with a positive ROI should be greater than 0	Remaining earnings should be equal to or greater than \$0 to recoup costs within 10–15 years	Remaining earnings should be equal to or greater than \$0 to recoup costs over the lifetime	Remaining earnings must be greater than \$0 over the evaluation period
Metric timeframe	Measured at 3 years post-completion for most programs but can be measured any year	Earnings are measured at 1 year post-completion for the cohort that completed 3 years prior; tuition and fees are measured for the current year ¹⁸²	Calculated at 10 years after enrollment but can be measured any year post-enrollment or completion depending on data source and use case	Calculated at 10 years after enrollment but can be measured any year post-enrollment or completion depending on data source and use case	Calculated for 25-to-34-year-olds with associate's and bachelor's degrees to align with the expected 10-year time period after which many—but not all—students earn their credentials	Recommends calculating 10 years after exit or 15 years after enrollment, but notes that calculating after enrollment may not be possible at the program level due to data limitations	Measured over a lifetime of working years	Measured at 5 years after entry for programs less than 18 months, 10 years for programs 18–36 months, and 15 years for programs 36 months or longer
Metric output	Ratio that measures the percentage of annual median earnings needed for graduates to repay loans in a reasonable timeframe to compare against the threshold	Dollar amount by which graduates do or do not meet the threshold, including negative dollars	Dollar amount by which former students do or do not meet the threshold, including negative dollars Can also measure whether (yes/no) or how many students (number/percent) meet the threshold with individual-level data	Ratio measuring the number of years for former students to meet the threshold with institutions not meeting the threshold labeled “no ROI” since the denominator cannot be 0 or negative	The percentage of 25-to-34-year-olds with associate's and bachelor's degrees in a state that exceed the threshold	Dollar amount by which former students do or do not meet the threshold, including negative dollars	Dollar amount by which former students do or do not meet the threshold, including negative dollars	Dollar amount by which former students do or do not meet the threshold, including negative dollars

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182 Whistle, “Workforce Pell Negotiated Rulemaking Recap,” 2025.

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Entity	US Department of Education (former GE/FVT) ¹⁷¹	US Department of Education (Workforce Pell Grant)	Postsecondary Value Commission	Third Way	State Opportunity Index	Georgetown University Center on Education and the Workforce	Foundation for Research on Equal Opportunity	Postsecondary Commission
Data sources	Planned as part of the former GE/FVT regulations, but the debt-to-earnings ratio has been removed under new ED regulations ¹⁸³	Plan to use federal earnings data and tuition and fee data from institutions	Estimated using IPEDS, Scorecard, and ACS data but can also be calculated with student-level data by institutions and states	Estimated using IPEDS, Scorecard, and ACS data but can also be calculated with student-level data by institutions and states	Estimated using aggregate IPEDS data for costs and individual-level ACS data for earnings	Suggests SLDS to calculate with individual-level data if available Otherwise suggests IPEDS for costs, College Scorecard for former student earnings, and ACS for comparison earnings	Estimated using IPEDS, Scorecard, ACS, and other survey data but can also be calculated with student-level data by institutions and states	The Commission will use individual-level data submitted by participating institutions (or their states) and state UI wage data
Metric uses	This metric was intended to be used for accountability and transparency under the former GE/FVT regulation and is recommended in the third report in this series	This metric is one of the measures for program eligibility for the Workforce Pell Grant program	IHEP publishes a web tool with this metric for most colleges and universities by predominant credential level using public data This tool also includes more detailed data by program and completion status for the University of Texas system using individual-level data ¹⁸⁴	Third Way publishes a web tool with this metric for most four-year institutions using public data ¹⁸⁵	Strada Education Foundation publishes this metric in its annual State Opportunity Index ¹⁸⁶	Suggested for use by state policymakers in the third report in this series by Gulish et al.	FREOPP publishes a web tool with this metric for most undergraduate and graduate certificate and degree programs using public data ¹⁸⁷	The Postsecondary Commission seeks to become a federally recognized accreditor that focuses on institutions that produce strong economic results for their students

183 US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026.

184 Postsecondary Value Commission, "Exploring Equitable Postsecondary Value," n.d.

185 Third Way, "Higher Ed Value Metrics," n.d.

186 Strada Education Foundation, *State Opportunity Index*, 2025.

187 Foundation for Research on Equal Opportunity, "Is College Worth It?," n.d.; Foundation for Research on Equal Opportunity, "Is Grad School Worth It?," n.d.

Deciding which ROI metric to choose depends on a number of factors, most importantly the question the stakeholder wants to answer. While research has shown correlations among different ROI metrics,¹⁸⁸ different metrics may be better suited for different purposes or use cases (e.g., transparency, improvement, accountability, case making). For transparency purposes, the former debt-to-earnings metric from ED can help students estimate whether they will be able to repay their loans, the Workforce Pell and Postsecondary Commission metrics can help students consider whether they will recoup their tuition and fees, and the Postsecondary Value Commission and Third Way metrics can help students consider whether they will recoup their full investment in a reasonable timeframe. For case-making purposes, the lifetime ROI metrics from the Georgetown University Center on Education and the Workforce (CEW) and the Foundation for Research on Equal Opportunity (FREOPP) can educate students, policymakers, and the public about the long-term benefits of investing in postsecondary education.

For accountability purposes, the ED and Postsecondary Value Commission metrics include an evaluative threshold applied within 3 to 10 years of entry, exit, and/or completion. Several states (e.g., Texas,¹⁸⁹ Colorado¹⁹⁰) and entities (e.g., Postsecondary Commission, Strada's State Opportunity Index¹⁹¹) are using an ROI metric that is similar to the Postsecondary Value Commission metric for both transparency and accountability purposes. These states and entities are generally defining ROI as cumulative median earnings for former students minus cumulative high school graduate earnings minus cumulative average net costs over a 10 (or more) year period after entry or exit. The Postsecondary Value Commission metric used an annualized ROI measuring amortized cumulative average net costs against annual median earnings for former students and annual high school graduate earnings at 10 years after entry to allow for easier comparison to multiple thresholds in their framework in a given year (e.g., earnings premium by major, economic mobility).¹⁹² The definition being used by these states and entities is also similar to the ROI metric from FREOPP if the measurement was conducted through 10–15 years instead of over a lifetime, as well as the ROI program and institutional accountability metric proposed in the third report in this series.¹⁹³ Functionally, all of these metrics produce similar results since they are all measuring whether students break even within a given timeframe. Table 4 shows how the basic formula for a cumulative or annualized break-even ROI metric can be transformed for other use cases to measure the percentage of students reaching ROI, years to reach ROI, and lifetime ROI, among others.

188 Carnevale and Mabel, *Enhancing How We Measure Individual Colleges' Contributions to Economic Mobility*, 2024.

189 Cox and Liu, *Credentials of Value*, 2025.

190 Colorado Department of Higher Education, *Colorado Minimum Value Threshold*, 2024.

191 Strada Education Foundation, "State Opportunity Index Appendix," 2025.

192 While conceptually similar, the underlying details of these metrics differ in whether they include direct, living, and/or opportunity costs, with some including all of these costs and others including direct costs with either living or opportunity costs.

193 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

TABLE 4. Applying Variations on Break-even ROI Metrics to Use Cases

	Metric	Definition	Transparency	Improvement	Accountability	Case making	Example uses
Basic break-even ROI metrics	Annualized ROI to break even in Y years	Annual median earnings for former students minus annual comparison earnings in state minus amortized cumulative average net costs at Y years after entry or exit	X	X	X	X	Postsecondary Value Commission Threshold 0 ED Postsecondary Student Success Grant
	Cumulative ROI to break even through Y years	Cumulative median earnings for former students minus cumulative comparison earnings in state minus cumulative average net costs through Y years after entry or exit	X	X	X	X	TX Strategic Plan + Community College Funding CO Minimum Value Threshold CEW State Guidance
Further calculations on basic break-even ROI metrics	Percentage of students reaching ROI in Y years	Number of former students reaching annual or cumulative ROI divided by total number of former students in cohort at Y years after entry or exit	X	X	X	X	Postsecondary Value Commission Threshold 0 <i>A Stronger Nation</i> (variation) State Opportunity Index (variation)
	Years to reach break-even ROI	Cumulative average net costs divided by (annual median earnings for former students minus annual median comparison earnings in state) at Y years after entry or exit	X			X	Third Way College Futures Money's Best Colleges
	Percentage of earnings to reach break-even ROI in Y years	Amortized cumulative average net costs divided by (annual median earnings for former students minus annual comparison earnings in state) at Y years after entry or exit	X	X	X		Gainful Employment (debt) Postsecondary Success Recognition Program
	Cumulative ROI to break even in lifetime	Cumulative median earnings for former students minus cumulative comparison earnings in state minus cumulative average net costs through 40 years after entry or exit	X			X	CEW ROI Tool FREOPP ROI Tool College Board Education Pays
	Equitable ROI index	Percentage of underserved students who experience ROI multiplied by the percentage of enrolled students from underserved populations equals the percentage of enrolled students from underserved populations who experience ROI in Y years after entry or exit		X	X		Equitable Value Index Opportunity Insights (variation) Third Way Mobility Index (variation) College Futures (variation)

To define and apply a break-even ROI metric, stakeholders need to make decisions about key parameters including

- whether to calculate the metric **annually or cumulatively** through the time period;
- what the **time period** for evaluation is for the metric (as well as the time period for amortization if using), which may differ based on the length or level of credential (e.g., undergraduate, graduate);
- whether to focus on **entrants or completers**, with the former allowing higher completion rates to be indirectly incentivized in the calculation;
- whether to calculate the metric at the **program or institutional level** or both;
- what to include when calculating **costs**, which may include direct costs such as tuition and fees, living costs, and/or opportunity costs related to forgone earnings while enrolled and which often exclude grant aid and include estimated interest assuming loan receipt;¹⁹⁴
- how to calculate enrolled (not elapsed) **time to credential or exit** if cumulative net costs are not available, which may include actual time if available, estimated time if incomplete data are available, or expected time based on program length;
- how to calculate **comparison earnings**, which may differ based on the level of credential (e.g., multiple of federal poverty level, high school graduate earnings, or bachelor's degree recipient earnings) and/or geographic location (e.g., state);¹⁹⁵
- how to define **earnings for former students**, particularly if there are any exclusions (e.g., current enrollment) or data limitations, which may make it difficult to include students who are actively in the labor force but are unemployed;
- whether to adjust **comparison or observed earnings** for student, program, institutional, and/or labor-market characteristics, including wage growth depending on quality of data available;
- how to express the **output** to address the relevant question for the use case (e.g., dollars, years, percentage of students);
- how to **disaggregate** the metric based on student, program, and institutional characteristics; and
- how to set a meaningful **threshold** for interpreting or using the metric.

When using ROI metrics for accountability purposes, institution and program leaders should aim for two goals simultaneously: to protect students from the worst outcomes and to improve outcomes for students, especially those in programs that are marginally successful. To accomplish this, they need

194 While most ROI metrics are focused on measuring students' investments, Cooper produced a supplemental version of his metric that also accounts for institutional expenditures. Cooper, *Does College Pay Off?*, n.d. To account for institutional, state, federal, and other expenditures, researchers often use a cost-benefit analysis to measure aggregate public economic benefits, which we discuss in the wealth section of this report.

195 Some researchers include comparison earnings at entry and through the evaluation period to account for opportunity costs while enrolled as well as the expected earnings differential after exit or completion.

ROI for Workforce Training Programs



While recent ROI research has largely focused on undergraduate programs administered by colleges and universities, there is a body of research that measures the return on investment and the cost/benefit of workforce training programs. Publicly funded training programs such as WIOA have generally been shown to contribute to earnings gains for some types of participants. There is also evidence of a positive cost/benefit for public investment in these programs.¹⁹⁶ However, more work is needed to develop guidance for stakeholders on defining and using ROI measures for workforce training programs since they may differ from postsecondary programs in critical ways, especially related to cost structure. For instance, WIOA training program services may be

free to participants, though funding can be subject to availability or prioritization of participants' needs. In contrast, participants in the Perkins program are responsible for paying program costs. Similarly, participants in private or for-profit training programs are responsible for their costs, though their employers may provide subsidies. Given the importance of workforce training programs to the talent development pipeline in this country, more attention to defining and measuring ROI is needed in this space. This report provides key information about the component parts of ROI and other value-related measures for workforce training programs where available to help support this emerging conversation.

* See, for example, Hollenbeck and Huang, *Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State*, 2013; Heinrich et al., "Do Public Employment and Training Programs Work?," 2013; Hollenbeck, "Return on Investment in Workforce Development Programs," 2012; and Andersson et al., *Does Federally-Funded Job Training Work?*, 2018.

access to data on how improving on components of the ROI metrics—for example, decreasing costs, debt, or time to credential—might improve value for students, allowing them to identify policy and practice levers to implement to increase success.

ROI Data Sources, Limitations, and Recommendations

Limitations in publicly available data sources are one reason for the variation in commonly used ROI metrics. In addition to methodological differences reflecting their audiences or use cases, different researchers have different approaches to dealing with these data limitations. Table 5 compares major public data sources often used to construct ROI metrics for postsecondary institutions and programs and rates their relative strengths and weaknesses to help support decisions about how to calculate ROI with existing information. While individual-level data from institutional and state systems is preferable for accuracy, the quality of these data varies considerably, as does their accessibility.¹⁹⁶

196 State Higher Education Executive Officers Association (SHEEO), "Explore Survey Results," n.d.

TABLE 5. Comparing Major Public Data Sources for Constructing Return on Investment Metrics for Institutions and Programs

Source	Frequency	Coverage	Credential level	Investment		Completion	Time to credential	Earnings
				Cost	Debt			
Integrated Postsecondary Education Data System (IPEDS) ¹⁹⁷	Annually	About 6,000 Title IV institutions	Institutional level with predominant credential level awarded as proxy for credential level	Annual total, direct, and living costs and grant aid for undergraduates	Annual loan amounts for undergraduates	Cost, aid, and loans not available by completion status; completion rate for undergraduates	Not available but can estimate for some undergraduates with completion rate data	Not available but can link with institution and program data in College Scorecard for many institutions
				Annual direct costs only for graduate students	Not available for graduate students	No completion rate for graduate students	Not available for graduate students	
College Scorecard ¹⁹⁸	Annually in past years, but most measures not updated in recent release	About 6,000 Title IV institutions	Program and institutional levels for key metrics for undergraduate and graduate students	Includes net cost data for undergraduates from IPEDS	Cumulative federal debt available at the institution and program levels for undergraduates and at the program level only for graduate students	Cumulative federal debt available by completion status at the institutional level for undergraduates and for completers only at the program level for undergraduate and graduate students	Not available but ED can calculate with NSLDS, which could be used with IPEDS for improved cumulative cost estimates	Earnings for undergraduates 6, 8, and 10 years after enrollment and up to 5 years after completion at the institutional level; earnings for undergraduate and graduate students up to 5 years after completion at program level
Student Tuition and Transparency System (formerly Financial Value Transparency) ¹⁹⁹	First FVT collection in 2025; STATS collection intended to be annual	All Title IV undergraduate and graduate programs	Program level with student-level reporting for undergraduate and graduate students	Cumulative net total and net direct cost after all grants for undergraduate and graduate programs	Cumulative federal and private loan debt for undergraduate and graduate programs	May publish completion rates for undergraduate and graduate programs	Median time to complete the program for undergraduate and graduate students	Median earnings for completers in relation to high school graduates or bachelor's degree recipients after 4 years

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Reasonably robust quality and availability
 Moderate quality or availability
 Not available or limited

197 US Department of Education, National Center for Education Statistics (NCES), "IPEDS Survey Components," n.d.

198 US Department of Education, "College Scorecard," n.d.

199 US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026; and The Institute for College Access and Success (TICAS), "Department of Education and Negotiators Reach Consensus on Higher Ed Accountability Framework," 2026.

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Source	Frequency	Coverage	Credential level	Investment		Completion	Time to credential	Earnings
				Cost	Debt			
Postsecondary Employment Outcomes (PSEO) ²⁰⁰	Annually	Up to 40 states/systems (varies by year) Includes non-Title IV students	Program and institutional level for undergraduate and graduate students	Not yet available but planning for potential cost pilot	Not available	Currently completers only for undergraduate and graduate students	Not available but needed for potential cost pilot	Earnings at program, institutional, and system/state levels at 1, 5, and 10 years after completion for undergraduate and graduate students
National Student Clearinghouse ²⁰¹	Monthly	About 4,000 institutions Includes non-Title IV students	Program and institutional level for undergraduate and graduate students	Not available but can collect via Postsecondary Data Partnership	Not available but can collect via Postsecondary Data Partnership	Can calculate completion rates for undergraduate and graduate students, potentially by program	Can calculate for undergraduates and graduate students	Not available but pilots underway with Census
Workforce Innovation Opportunity Act ²⁰²	Quarterly to annually	About 7,000 providers with 75,000 programs in 700 fields across all states and territories	Individual, provider, program, and state level	Quarterly and total WIOA expenditures at participant level with program fees reported separately	Not available	Completion among exiters rather than entrants more readily available. Also report credential attainment during or within one year of exit. ²⁰³	Not readily reported but may be able to calculate with underlying data	Median earnings for program participants during the second quarter after exit

Reasonably robust quality and availability

Moderate quality or availability

Not available or limited

Cost and Debt Data

While publicly available data sources generally provide sufficient data to calculate reasonable ROI metrics, there are **data limitations** to their coverage and accuracy as shown in Table 5. Cost data available from the Integrated Postsecondary Education Data System (IPEDS), the most comprehensive public source for institution-level data, are

- collected at the institutional level, not the credential level (e.g., certificate, associate's, bachelor's, master's, doctorate);²⁰⁴
- limited in terms of net costs after grant aid, which are only readily available for a subset of

200 US Census Bureau, "Longitudinal Employer-Household Dynamics (LEHD) PSEO Experimental Data," n.d.

201 National Student Clearinghouse, "National Student Clearinghouse," n.d.

202 Deming et al., *Navigating Public Job Training*, 2023; US Department of Labor, Employment and Training Administration, "WIOA Participant Individual Record Layout (PIRL)," n.d.; US Department of Labor, Employment and Training Administration, "Training Provider Results," n.d.; and US Department of Labor, Employment and Training Administration, "WIOA Performance Indicators and Measures," n.d.

203 It can be difficult to report completion rates because participants may be engaged in multiple WIOA programs and reporting is focused on exiting or completing the WIOA program rather than the provider program, though it may be possible to generate completion rates for the provider program with the underlying data.

204 This limitation means that the predominant credential level must be used as a proxy for credential level, though most institutions offer more than one credential level.

undergraduate students and are only disaggregated by income;²⁰⁵

- inconsistent in the measurement of living costs for undergraduate students across some institutions, including in the same locality;²⁰⁶
- limited to direct costs—tuition and fees—for graduate students without information on grant aid, preventing the calculation of their net costs or living costs;²⁰⁷ and
- annual only and do not include cost or debt by completion status or time-to-credential, preventing the accurate calculation of cumulative costs.

When using IPEDS data to calculate cumulative net costs for undergraduate students, a number of researchers use the readily available net price data. However, these data are based only on students who have received either grant aid or Title IV aid, which omits full-pay students from the calculations. While net price for aid recipients may be an appropriate figure for consumer purposes, it does not capture students' full investment for the purposes of calculating ROI. To adjust for this problem and account for full-pay students, Cheng's methodology for calculating net cost uses the grant aid data available in IPEDS to calculate the average amount of grant aid awarded across all first-time, full-time undergraduates, not just grant recipients, though the trade-off is that this figure cannot be disaggregated by income.²⁰⁸

Calculating students' cumulative debt by institution and program is also challenging using the most comprehensive public source, the College Scorecard, which

- includes only cumulative *federal* debt since it is only based on Title IV recipients, although only about 6 and 7 percent of undergraduate and graduate students respectively currently use private loans (which may change based on new loan limits);²⁰⁹
- does not include cumulative federal debt at the institutional level for graduate students;
- does not disaggregate cumulative federal debt at the institutional level by completion status *and* student characteristics, though it does disaggregate cumulative federal debt by student characteristics for completers at the program level;²¹⁰

205 Data on net costs are available only for first-time, full-time undergraduate students who receive grant aid and for first-time, full-time undergraduate students who receive Title IV funds, the latter of whom can be disaggregated by income. Net costs can also be calculated using aggregate data on cost of attendance and grant aid for first-time, full-time undergraduates or all undergraduates, which also allows inclusion of full-pay students but then cannot be disaggregated by income.

206 Kelchen et al., *The Costs of College Attendance*, 2017.

207 The IPEDS Finance Survey includes a line item on the scholarship dollars awarded at the institution, but the amount cannot be disaggregated by undergraduate and graduate students. Some researchers multiply this amount by the percentage of students who are graduate students at the institution to estimate the scholarship dollars available to this population, but the allocations are not likely proportional between undergraduates and graduates.

208 Cheng, *Recommendations for Measuring Student Investment in College*, 2021.

209 Georgetown University Center on Education and the Workforce analysis of data from the US Department of Education, National Postsecondary Student Aid Study (NPSAS), 2020 (Undergraduate and Graduate).

210 Also, upward transfers are not counted as completers in either the institution or the program debt data, which provides an incomplete measure of students who are successful at two-year institutions.

- contains missing or suppressed data on cumulative debt for programs with small enrollments;²¹¹ and
- has not updated debt data for several years.

Despite these limitations, researchers have been able to credibly estimate students' cumulative costs and debt at the institution and/or program levels using IPEDS and Scorecard data,²¹² especially when augmented with data from the National Postsecondary Student Aid Study (NPSAS).²¹³ However, a number of these limitations could be addressed by ED's new Student Tuition and Transparency System (STATS), formerly the Financial Value Transparency (FVT) data collection.²¹⁴ When published, the STATS data could be a major step forward for measuring ROI, as it collects individual-level data on students' total and direct costs, their grant aid and loan amounts from most sources over the course of their programs, and their time to completion. These data could allow researchers to calculate accurate cumulative net costs and debt at the program level for undergraduate and graduate students and to disaggregate outcomes by completion status and student characteristics using other NSLDS data, if ED publishes the necessary metrics from the STATS system.²¹⁵

Some states also are calculating cumulative net cost and debt to measure ROI using their student-level data systems.²¹⁶ Unfortunately, not all states currently collect information on student cost, aid, and debt in their systems.²¹⁷ This is due partly to previous guidance from ED that was unclear about whether states could access and use financial aid data from federal sources (e.g., FAFSA, NSLDS) for purposes beyond aid administration and evaluation. New guidance from ED provides some options for states when using federal financial aid data in their systems. First, states now clearly have the option to use FAFSA data for research related to college access and completion; however, this does not include students' income data during enrollment (which is now considered

211 ED should publish national- and state-level cumulative debt by credential level using their unredacted dataset to ensure the field has access to accurate aggregate information for benchmarking and comparisons. Based on our analyses, about 80 percent of programs are missing cumulative debt data in the most recent College Scorecard file, though Kelchen previously reported that the majority of students are enrolled in programs with available data. Kelchen, "Some Thoughts on Program-Level College Scorecard Data," 2019.

212 Cheah et al., *Ranking 4,600 Colleges by ROI (2025)*, 2025; Postsecondary Value Commission, *Equitable Value*, 2021; and Itzkowitz, *Price-to-Earnings Premium*, 2020.

213 NPSAS is administered every four years and is the most comprehensive source of information on cumulative net costs and debt for undergraduate and graduate students at the national level, though not at the institutional or program level. NPSAS is also representative for undergraduates at the state level for 30 states.

214 The US Census Bureau also recently obtained access to 1098-T data. The 1098-T is a form that postsecondary institutions must submit to the IRS for most enrolled students each year to record how much they paid in net direct costs for tax purposes. This dataset could be used as administrative data to improve upon the tuition and fees data available in IPEDS, but it would need to be linked to NSLDS to obtain key information such as program, credential level, and enrollment and completion status. This information could then be shared via the College Scorecard.

215 US Department of Education, "Financial Value Transparency and Gainful Employment," 2023; and US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026.

216 Cox and Liu, *Credentials of Value*, 2025.

217 State Higher Education Executive Officers Association (SHEEO), "Explore Survey Results," n.d.

Federal Tax Information and is subject to further restrictions). States also have the option to use non-FAFSA financial aid data that originates from the institution or other entities. This non-FAFSA data may include data that are reported to ED such as total aid awarded, grant aid and/or loan receipt and amount by source (e.g., Pell grant amount), and unmet financial need.²¹⁸ Some states are also exploring ways to link student data to consumer credit data to obtain information about student borrowing, including private loans, though the STATS system aims to collect private loan data by program.

Finally, stakeholders need to consider several issues related to data sources and their limitations when calculating living costs or opportunity costs as part of students' cumulative costs for ROI metrics. For example, some institutions have been shown to report living costs estimates to IPEDS that are inconsistent with costs reported by other institutions in the same locality.²¹⁹ Despite these inconsistencies, some researchers use the published living cost data in IPEDS because it is readily available, it reflects specific living costs for students who live on campus, and it is used to set loan borrowing limits (with some students borrowing to cover these living costs).²²⁰ Some researchers use an alternate data source for living costs, such as a multiple of the federal poverty level²²¹ or basic living costs as presented in living-wage calculators,²²² to standardize costs within a geographic area. Still others omit living costs in favor of opportunity costs or forgone wages while enrolled.²²³ Researchers who include opportunity costs need to decide how to calculate these costs—determining, for example, whether to subtract students' earnings while enrolled (if available) from forgone wages, which can cause some students to have “negative” opportunity costs and may disproportionately affect populations with higher instances of working while enrolled. Despite representing different conceptual approaches to measuring cumulative costs, the different measures are correlated and often produce reasonably similar results.²²⁴ The third report in this series, *A Framework for Assessing the Value of Postsecondary Education and Training*, covers the use of opportunity costs in more detail.²²⁵

218 US Department of Education, Federal Student Aid, “Guidance on the Use of Federal Tax Information (FTI), Free Application for Federal Student Aid (FAFSA®) Data, and Non-FAFSA Data,” 2025; and National Association of Student Financial Aid Administrators (NASFAA), *Navigating Federal Guidance on the Use and Disclosure of FAFSA Data and Federal Tax Information*, 2025.

219 Kelchen et al., *The Costs of College Attendance*, 2017.

220 Postsecondary Value Commission, *Equitable Value*, 2021; and Itzkowitz, *Price-to-Earnings Premium*, 2020.

221 US Department of Education, “Financial Value Transparency and Gainful Employment,” 2023; and US Department of Education, “Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Pell Grant Exclusion Relating to Other Grant Aid; and Workforce Pell Grants,” 2026.

222 Center for Women’s Welfare, University of Washington, “Self-Sufficiency Standard Calculator,” n.d.; and Glasmeier and Massachusetts Institute of Technology, *Living Wage Calculator*, 2026.

223 Foundation for Research on Equal Opportunity, “Is College Worth It?,” n.d.

224 Carnevale and Mabel, *Enhancing How We Measure Individual Colleges’ Contributions to Economic Mobility*, 2024.

225 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

Earnings Data

While earnings data have become more widely available in recent years, existing datasets still have notable **data limitations** related to calculating ROI and other earnings-related metrics. At the national level, the most robust and accurate earnings data come from the Internal Revenue Service (IRS), but those data are difficult to obtain outside of federal agencies. The US Census Bureau has access to this information; the College Scorecard also links to IRS earnings data for most institutions and programs that participate in federal financial aid programs. However, the College Scorecard has the following limitations:²²⁶

- At the institutional level, the Scorecard does not include earnings for noncompleters separate from earnings for completers for undergraduate students, and it does not include earnings at the institutional level for graduate students.
- The Scorecard does not include former students who are not working (or who have zero or nonpositive earnings) in earnings measures, which obscures negative earnings and employment outcomes.²²⁷
- The Scorecard does not allow for separate measurement of earnings for students who went on to obtain further credentials (e.g., bachelor's degree students who obtain graduate degrees).
- The Scorecard contains missing or suppressed earnings data for programs with small enrollments.²²⁸
- The recent update to the College Scorecard only focused on median earnings for graduates four years after completion, leaving many earnings (and other) measures out of date.

Many states use quarterly earnings from their Unemployment Insurance (UI) systems to report earnings outcomes for postsecondary programs and institutions,²²⁹ with all states using UI records to report earnings outcomes for federal workforce training programs. While UI systems are important sources of information that are updated more frequently than the College Scorecard, these systems would also benefit from improvements to better calculate ROI and other earnings metrics. As noted, several organizations supported by philanthropy are working to help states develop enhanced wage records by working with employers to include labor-market participation status, hours worked, occupation, and location while also potentially adding skill requirements.²³⁰

²²⁶ US Department of Education, "College Scorecard," n.d.

²²⁷ The data do include former students who are self-employed and who are employed full- or part-time.

²²⁸ For example, Georgetown University Center on Education and the Workforce analysis found that about 78 percent of programs are missing earnings data for graduates one year after completion. ED should publish national- and state-level earnings by credential level information using their unredacted dataset to ensure the field has access to accurate aggregate information for benchmarking and comparisons.

²²⁹ Harmon, *The Current State of Earnings Data*, 2021.

²³⁰ Groshen et al., *Harnessing Employer Records for Enhanced Research, Statistics, and Evaluation*, 2022; and Hanson, *What States Should Know About Education and Work—But Don't*, 2025.

Without more detailed wage information, different states are using different methodologies to measure earnings to deal with data limitations. Some states

- exclude former students with no wages since it is unclear whether these former students intend to participate in the labor market or whether their data are missing for other reasons (e.g., living out of state, self-employment, or working for the federal government);
- include only former students whose wages exceed a full-time minimum wage equivalent since it cannot be determined who is working full- or part-time without hours; or
- include only former students with positive earnings in multiple quarters.

These omissions may obscure negative outcomes, especially for noncompleters.²³¹ We recommend that states should at least include former students with part-time earnings while they improve UI data to identify whether students with zero wages are actually unemployed and seeking work.

Earnings Gains

In addition to ROI, stakeholders are interested in whether students are realizing earnings gains with their postsecondary credentials over time or in relation to other meaningful thresholds. Research has generally shown that certificates and associate's degrees produce early-career **earnings growth**, while bachelor's and graduate degrees tend to produce steeper lifetime earnings growth, leading to larger cumulative returns over the career. However, earnings trajectories can differ considerably by field within and across credential levels.²³² The basic **definition** of earnings growth is the change in earnings for former students between specified time periods after exit, typically measured within one to five years of exit or completion.²³³ Another definition of earnings growth measures students' pre-post earnings by subtracting their earnings prior to (or during) enrollment from their earnings after exit, which may be most relevant for students who are seeking short-term credentials to upskill or reskill in an effort to maintain or increase their earnings.

Data sources include federal and state administrative data systems as well as federal surveys. Federal WIOA programs report earnings data at six months after exit, which researchers have linked to state UI wage records to conduct longer earnings growth analyses for these programs.²³⁴ Data from the College Scorecard can be used to measure earnings growth between one and five years for undergraduate completers at the institutional level and undergraduate and graduate completers at the program level. Earnings growth can also be measured between six, eight, and ten years after entry for undergraduate

231 Harmon, *The Current State of Earnings Data*, 2021.

232 Pender et al., *Education Pays 2026*, 2026; Cohn, *How Do College Graduates' Earnings Change over Time?*, 2024; Kim et al., "Field of Study in College and Lifetime Earnings in the United States," 2015; and Carnevale et al., *The College Payoff*, 2021.

233 Spitze et al., *EQOS Signal of Quality*, 2024; and California Community Colleges Chancellor's Office, "Salary Surfer," n.d.

234 US Department of Labor, Employment and Training Administration, "WIOA Performance Indicators and Measures," n.d.; and Andersson et al., "Does Federally Funded Job Training Work?," 2018.

students at the institutional level at Title IV institutions with the Scorecard (but not separately for completers and noncompleters).²³⁵ Some states, like California and Virginia, are using their SLDSs and UI systems to measure earnings growth, and some states, like Indiana, are augmenting those calculations with data from Lightcast.²³⁶ Researchers also often use the American Community Survey to examine earnings growth by age and credential at the national, state, and local levels.²³⁷

Earnings growth—especially in the early years after exit or completion—does not necessarily measure whether students experience **earnings sufficiency** that improves their life circumstances. The general **definition** of earnings sufficiency covers the percentage of former students or graduates experiencing gains that lead to earnings above a living wage or above the earnings of high school graduates in their geographic area, both of which are used as a proxy for minimally adequate earnings to meet basic life needs. **Data sources** for defining and measuring a living wage include

- the official and supplemental poverty measures from the US Census Bureau (or multiples of those measures, such as 150 percent),²³⁸
- the MIT Living Wage Calculator,²³⁹ and
- the University of Washington Self-Sufficiency Standard.²⁴⁰

The College Scorecard has also included the percentage of undergraduate and graduate students earning more than 150 percent of the federal poverty level up to three years after completion at the program level, though these data have not been updated recently.²⁴¹ However, the other sources listed allow the user to customize the data by location and generally set a higher bar by accounting for additional living costs. Users can then compare the results to median institutional or program earnings outcomes available from federal or state sources. Median earnings for WIOA participants six months after exit can also be compared to these thresholds.

The College Scorecard has also included the percentage of undergraduate students earning more than the median earnings of high school graduates nationally up to 10 years after entry and up to 5 years after completion at the institutional level, as well as up to 5 years after completion at the program level for undergraduate and graduate students (though these data also have not been updated recently). The new accountability provisions passed in the 2025 One Big Beautiful

235 Delisle and Cohn, *Measuring Earnings Growth by Field of Study to Inform Higher Education Policy*, 2024.

236 California Cradle to Career Data System, “Pathways to College in California,” n.d.; State Council of Higher Education for Virginia, *Guide to the Post-Completion Wages of Graduates*, n.d.; and Indiana Department of Workforce Development, “Explore Top Jobs Data,” n.d.

237 Pender et al., *Education Pays 2026*, 2026.

238 Creamer and Burns, “What’s the Difference Between the Supplemental and Official Poverty Measures?,” 2022.

239 Glasmeier and Massachusetts Institute of Technology, “Living Wage Calculator,” 2026.

240 Center for Women’s Welfare, University of Washington, “Self-Sufficiency Standard Calculator,” n.d.

241 US Department of Education, “College Scorecard,” n.d.

Bill Act (OBBBA) generally use median high school graduate earnings by state for comparison with undergraduate degrees and median bachelor's degree earnings by state for comparison with graduate degrees, with some exceptions.²⁴² Notably, the OBBBA excluded certificate programs from this earnings test, though these programs are still subject to the Gainful Employment regulations, which were revised to apply a similar earnings threshold.²⁴³ Median earnings for high school graduates generally provide a higher sufficiency threshold than the living wage for an individual, although this is less likely to be the case in urban areas or when more people are living in the household.

Further, students deserve to know how their earnings are likely to vary based on their chosen field of study or the **earnings premium** for their specific credential. The Georgetown University Center on Education and the Workforce found that first-year earnings for the same credential in the same major can vary by \$80,000 at different colleges and universities.²⁴⁴ The Postsecondary Value Commission's framework included a series of thresholds that extend beyond minimum economic returns to also measure an earnings premium by field of study or credential level. A general **definition** of the earnings premium is whether the median earnings for former students from a program in a given field of study are at or above the median earnings for that field of study at the same credential level across all institutions. An earnings premium metric can also measure the share of former students who experience such an earnings gain.²⁴⁵ **Data sources** include federal and state administrative data systems for program and institutional data as well as federal surveys such as the American Community Survey for national and state data. The College Scorecard has provided median earnings by program of study for completers of many undergraduate and graduate programs; some states are publishing these data from their SLDSs and UI systems; and about 40 entities (mainly state systems) are now participating in the Postsecondary Economic Outcomes (PSEO) project, which provides earnings data for completers by credential level and program of study.²⁴⁶ WIOA programs are expected to report the Classification of Instructional Programs (CIP) code for training programs, so it may be possible to evaluate participants' earnings by field.²⁴⁷ The ACS has earnings data by credential level across credential types and program of study for bachelor's degree recipients only. Due to **data limitations**, earnings premium metrics typically compare institutions and programs on earnings by program of study based on students' major when they completed their credentials, rather than on their industry or occupation in the workforce. This is due partly to the fact that a single program of study can lead to employment in multiple industries or occupations, and that multiple programs of study can lead to

242 US Department of Education, "Financial Value Transparency and Gainful Employment," 2023; and US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026.

243 US Department of Education, "Financial Value Transparency and Gainful Employment," 2023.

244 Carnevale et al., *Buyer Beware*, 2020.

245 Postsecondary Value Commission, *Equitable Value*, 2021.

246 California Cradle to Career Data System, "Pathways to College in California," n.d.; State Council of Higher Education for Virginia, *Guide to the Post-Completion Wages of Graduates*, n.d.; Indiana Department of Workforce Development, "Explore Top Jobs Data," n.d.; and US Census Bureau, "Longitudinal Employer-Household Dynamics (LEHD) PSEO Experimental Data," n.d.

247 US Department of Labor, Employment and Training Administration, "WIOA Participant Individual Record Layout (PIRL)," n.d.

employment in the same industry or occupation. This is also due to the fact that information about students' occupations can be difficult to obtain, since the College Scorecard does not include industry or occupation and most state UI systems include only industry, not occupation, at this time.

Economic Mobility

The percentage of people who earn more than their parents by age 30 has dropped from about 90 percent to about 50 percent over the past several generations, driven by declines among middle- and working-class families, especially in industrial areas. In today's knowledge economy, it is beneficial to consider whether and how postsecondary education enhances economic mobility.²⁴⁸ To this end, several metrics have been developed to measure institutions' **economic mobility rates**. Most prominently, Opportunity Insights published a landmark study measuring the role of postsecondary institutions in intergenerational mobility using linked federal tax data and featuring mobility report cards for many colleges and universities.²⁴⁹ As established by Opportunity Insights, the **definition** of an institution's economic mobility rate is the product of the percentage of students at each institution who come from families in the bottom fifth of the income distribution and who end up in the top fifth by their mid-thirties *multiplied by* the percentage of students enrolled in each institution who come from families in the bottom fifth.²⁵⁰ Other researchers have conducted secondary analyses on Opportunity Insights' dataset to broaden the definition of economic success to the top *two-fifths* of the income distribution.²⁵¹ This work identifies colleges and universities that not only successfully support low-income students in achieving economic success, but also provide access to enough low-income students to have a meaningful impact on upward economic mobility in the country.²⁵²

Opportunity Insights' results are important but difficult to replicate with accessible **data sources**. Most researchers lack access to the IRS longitudinal panel data that Opportunity Insights used, and while a few states may be able to produce a similar metric using their SLDSs and UI systems,²⁵³ most do not yet have enough years of data to measure intergenerational impacts. Drawing on Opportunity Insights' findings and related work, the Postsecondary Value Commission included a **modified definition** of economic mobility or stability with a metric that can be calculated in a given year using publicly available **data sources**. This metric is defined as the percentage of low-income former students with earnings in the fourth income quintile or above (not just the top quintile) at a specified time period *multiplied by* the percentage of former students who were low-income while enrolled. Unlike Opportunity Insights' data sources, which use individual-

248 Chetty et al., "The Fading American Dream," 2016.

249 *New York Times*, "Economic Diversity and Student Outcomes at America's Colleges and Universities," 2017.

250 Chetty et al., "Mobility Report Cards," 2017.

251 Espinosa et al., *Minority Serving Institutions as Engines of Upward Mobility*, 2018.

252 Chetty et al., "Mobility Report Cards," 2017.

253 State Council of Higher Education for Virginia, *Guide to the Post-Completion Wages of Graduates*, n.d.

level data to measure the percentage of students reaching an economic mobility threshold, publicly available sources like the College Scorecard have **data limitations** that only allow for consideration of whether students are meeting this type of threshold at the median.²⁵⁴ WIOA programs report on short-term earnings as well as participant demographics, so it may be possible to construct these types of measures for these programs, though more observations of earnings over time would be preferable.²⁵⁵ However, with individual-level data from institutions or states, stakeholders can calculate this modified measure specifically for low-income students and multiply it by the percentage of low-income students enrolled.

The Postsecondary Value Commission developed a related measure called the Equitable Value Index, while Third Way created its Economic Mobility Index, both multiplying their ROI measure by an access rate for low-income and other populations.²⁵⁶ The new Carnegie Classifications for Student Access and Earnings do not calculate an economic mobility rate, but they do evaluate both access and earnings in relation to the populations served by an institution in its state or nationally to categorize and incentivize the institution on these dimensions.²⁵⁷ Regardless of method chosen, stakeholders should incorporate both an economic success rate and an access rate into the metric to avoid rewarding programs and institutions that produce high earnings without also enrolling a sufficient number of underserved students.²⁵⁸

Wealth: Are postsecondary education and training credentials enabling graduates to accumulate assets that contribute to personal and public wealth?

The relationship between postsecondary education and wealth is bidirectional. On one hand, familial wealth increases the likelihood of attending and completing postsecondary education due in part to financial transfers from wealthy parents to their children, which can also reduce the need to accumulate student loan debt. On the other hand, postsecondary education can affect the ability to build wealth through increased earnings, which can enable asset accumulation.²⁵⁹ Wealth is a critical component of value since most people rely on earnings as the primary means of building wealth.²⁶⁰ To demonstrate the value of postsecondary credentials with respect to wealth, this section will

254 Postsecondary Value Commission, *Equitable Value*, 2021.

255 US Department of Labor, Employment and Training Administration, "WIOA Performance Indicators and Measures," n.d.

256 Postsecondary Value Commission, *Equitable Value*, 2021; and Robinson and Cecil, "2023 Economic Mobility Index," 2023.

257 Carnegie Classification of Institutions of Higher Education, "2025 Student Access and Earnings Classification," n.d.

258 Carnevale and Mabel, *Enhancing How We Measure Individual Colleges' Contributions to Economic Mobility*, 2024; Espinosa et al., *Minority Serving Institutions as Engines of Upward Mobility*, 2018.

259 Addo, *Ensuring a More Equitable Future*, 2021.

260 About 45 percent of wealth is bequeathed between generations, and wealth is largely concentrated among a small share of the population. Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

include metrics that measure removing negative wealth through **student loan repayment**; building assets through **savings, homeownership**, and **net worth** as an aggregate measure; and contributing more broadly to the wealth of the country through the **public economic benefits** of postsecondary education.

It should be noted that student loan debt, savings, and homeownership are components of net worth. Measuring net worth offers an advantage over measuring individual components such as savings or homeownership because individuals may make different choices about whether and how to invest their money. However, data on total net worth is more difficult to obtain than data on only debt, savings, and homeownership, especially at the individual (rather than the household) level, so we explore both the components of net worth and the aggregate metric. Given that wealth metrics traditionally have been measured at the household level, further discussion is needed to establish best practices for applying these metrics at the individual level, where the Postsecondary Value Model and the broader value conversation focus. While there is not yet consensus on the use of wealth metrics to measure how much value students gain from their credentials, there is great interest in further exploration of the topic, especially given concerns about education's role in yawning wealth gaps by race/ethnicity.²⁶¹ We offer the metrics below to support further discussion about wealth as an element of postsecondary value.

Debt as Negative Wealth

The relationship between education debt and wealth is complex. Especially for students from underserved populations, student loans can increase access to and success in postsecondary education,²⁶² thereby providing a path toward potentially increasing earnings and wealth. However, student debt can also function as “negative wealth” that may adversely affect some borrowers’ ability to invest in homeownership or accumulate retirement savings, especially if these loans affect their credit scores through delinquency.²⁶³ Because borrowing for postsecondary education is so prevalent,²⁶⁴ considerable attention has been focused on cumulative debt and **ability to repay student loans**. While debt-to-earnings ratios can be used as an ROI metric, they can also measure students’ potential ability to repay their loans. In the former Gainful Employment regulations, the **definition** of ability to repay student loans rested on a debt-to-earnings ratio for program

261 Addo, *Ensuring a More Equitable Future*, 2021.

262 Cochrane, *Examining How Student and Parent Debt Impacts Postsecondary Value*, 2021.

263 Research has shown that student loan debt can both help improve completion and increase earnings as a result, which may facilitate homeownership. Yet research has also shown that some borrowers may find it difficult to purchase a home, especially if they face hardships while repaying their student debt that affect their credit scores. Addo, *Ensuring a More Equitable Future*, 2021; Mezza et al., “Student Loans and Homeownership,” 2016; and Black et al., *Taking It to the Limit*, 2023.

264 About half of students completing undergraduate (55 percent) and graduate (48 percent) credentials borrow for their education, which is similar to the proportion who borrowed 20 years ago (though these percentages increased and then decreased in the intervening years). The average cumulative amount borrowed increased by about \$5,000, or 20 percent, for undergraduate credentials (from about \$25,000 to \$30,000) and by about \$30,000, or 50 percent, for graduate credentials (from about \$60,000 to \$90,000) in constant dollars in that time period. US Department of Education, National Center for Education Statistics (NCES), Table 331.95 in *Digest of Education Statistics*, 2023; and US Department of Education, National Center for Education Statistics (NCES), Table 332.45 in *Digest of Education Statistics*, 2023.

graduates requiring that annual debt payments make up less than 20 percent of their discretionary income (annual earnings minus 150 percent of the federal poverty line) or less than 8 percent of their annual income. These thresholds were based on financial sector guidelines about levels of debt considered manageable.²⁶⁵ While monthly debt and median earnings have been separately available from the College Scorecard as a **data source** by institution and program,²⁶⁶ the US Department of Education's reporting has **data limitations** since it has not published debt-to-earnings ratios and likely will not, given that these ratios were removed under the new Student Tuition and Transparency System.²⁶⁷ States and institutions may need to produce their own calculations of debt-to-earnings ratios using their student-level data systems as a result.

Loan repayment rates can further measure not just students' potential ability to repay their debt, but whether they are actually doing so. This metric is important for a number of reasons, including that some students struggle to repay their loans even with relatively small balances, especially when they did not complete their credentials.²⁶⁸ The repayment rate can be measured by the percentage of students who are making progress on paying down their principal balance. However, researchers and policy analysts have shifted toward using a metric based on repayment status because dollar-based measures can be confounded by the effects of different scenarios on students' balances, such as the impact of deferment when continuing one's education and the impact of using an income-based repayment plan. By **definition**, a loan repayment status metric measures the percentage of former students who are in good standing on their student loans within a specified time period; those in good standing include former students who have paid off their loans, who are making progress on their balances, who have an in-school or military deferment, or whose loans have been discharged. Former students who are delinquent, in forbearance, in default, or are not making progress against their balances are not considered to be in good standing on their student loans.²⁶⁹

The College Scorecard, the most robust publicly available **data source** for this information, has included student loan repayment status at one to four years after exit at the institutional and program levels. At the institutional level, the Scorecard has disaggregated repayment status by undergraduate and graduate level, completion status, and Pell grant recipient status for undergraduates; at the program level, repayment status is only available for undergraduate completers.²⁷⁰ Scorecard data can be hampered by **data limitations** including missingness, especially for program-level data, and

265 US Department of Education, "Financial Value Transparency and Gainful Employment," 2023.

266 The denominators for the debt and earnings measures in the Scorecard are different because the earnings measures may include non-borrowers but they can be used as a proxy for now to calculate debt-to-earnings ratios.

267 These regulations were finalized by the US Department of Education in June 2026. They are intended to replace the Gainful Employment/Financial Value Transparency regulations. US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026.

268 RTI International, "Study Shows Students with the Lowest Student Loan Debt Tend to Default More than Students Carrying More Debt," 2017.

269 Miller, *Measuring Return on Investment for Postsecondary Education*, 2021; US Department of Education, "College Scorecard," n.d.

270 US Department of Education, "College Scorecard," n.d.

the inconsistency of data updates in recent years.²⁷¹ Nonetheless, we recommend disaggregating all the metrics in the Postsecondary Value Model by income and race/ethnicity whenever possible. This recommendation is especially important for loan repayment rates given that some underserved populations are more likely to borrow, less likely to complete, and much more likely to experience difficulty with repayment—and consequently to default on their loans.²⁷²

Personal Assets

Individuals need discretionary income in order to spend, save, or invest after paying for taxes, expenses, and debt. **Savings** may seem like a straightforward measure of wealth, but in practice, there are a number of definitions to consider and challenges with measurement with different levels of information available across data sources. Here, the **definition** of savings is the amount of money that former students have available in standard savings accounts, certificates of deposit, money market accounts, and the like as well as retirement savings accounts at a specified time period after exit; savings can also be measured for workers by credential level depending on data availability.²⁷³ It is also worth considering whether to include educational savings accounts, such as 529 plans, since people with credentials are much more likely to save for their children's postsecondary education.²⁷⁴ We consider other types of assets intended to generate investment income—such as real estate, stocks, bonds, and mutual funds—as part of a summary net worth measure that also includes savings. According to the Survey of Consumer Finances (SCF), families with a householder who has a postsecondary credential are much more likely to have retirement accounts, and the median value of their retirement accounts is more than three times higher than that of families with a householder who has a high school diploma.²⁷⁵

Public **data sources** on savings are primarily available through national surveys from the Federal Reserve, the Bureau of Labor Statistics, the Census Bureau, and others. The Survey of Consumer Finances (SCF),²⁷⁶ Consumer Expenditure Survey (CE),²⁷⁷ Survey of Income and

271 For example, Georgetown University Center on Education and the Workforce analysis found that more than 90 percent of programs are missing repayment rate data in the most recent data file. However, the level of missingness is much lower for undergraduates at the institutional level (only about 23 percent), likely due to the accountability provisions related to loan default rates.

272 Scott-Clayton, "What Accounts for Gaps in Student Loan Default, and What Happens After," 2018; Levine et al., "Borrowers with Certain Educational Experiences Appear More Likely to Default," 2024; Scott-Clayton, "The Looming Student Loan Default Crisis Is Worse Than We Thought," 2018; The Institute for College Access & Success (TICAS), *Students at Greatest Risk of Loan Default*, 2018; Cohn, *Student Loan Default Patterns*, 2022; and Pew Research Center, "The Student Loan Default Divide," 2025.

273 Retirement accounts are similar to savings accounts in that they are set aside for future use, but they are also similar to other assets such as stocks, bonds, and mutual funds in that they are expected to grow over time. We have classified them with other savings-related assets since they are often referred to as retirement savings accounts.

274 Sallie Mae, *How America Saves for College*, 2018.

275 Nearly 75 percent of families with a householder who has a college degree have retirement accounts, compared to just 39 percent of families with a householder who has a high school diploma as the highest level of attainment. The median value of these accounts is nearly \$142,000 for families with a householder who has a college degree and \$40,000 for those with a householder who has a high school diploma. Board of Governors of the Federal Reserve System, "Retirement Accounts by Education of Reference Person," 2023.

276 Board of Governors of the Federal Reserve System, "2022 Survey of Consumer Finances," 2023.

277 US Bureau of Labor Statistics, "Consumer Expenditure Surveys," n.d.

Program Participation (SIPP),²⁷⁸ and Panel Study of Income Dynamics (PSID)²⁷⁹ are all potential sources for national-level data on savings and retirement by credential level. All of these surveys ask about the value of various types of retirement accounts, as well as savings accounts and other investments. There are **data limitations**, however, with the levels of data available in these surveys. CE is only available at the household level, while SCF, SIPP, and PSID provide at least some data about individuals within households. None of these sources provide information at the program or institutional level, and only SIPP and CE can provide state-level data for some states. It should be noted that even the surveys with some individual-level responses are structured as household- or family-level surveys, so considerable care is needed to use and interpret individual-level responses.

A strong majority of adults in this country still view investing in **homeownership** as “part of the American dream.”²⁸⁰ People with postsecondary credentials are more likely to own a home, and their homes are almost double the value of those owned by people with a high school diploma as their highest level of attainment.²⁸¹ For most homeowners, home equity comprises the majority of their net worth—nearly 80 percent for the bottom three income quintiles.²⁸² The general **definition** of a homeownership metric is the percentage of former students who own a home—or their median home value—at a specified time after exit; homeownership can also be measured for workers by credential level depending on data availability. Similar to the **data sources** for savings, CE, SCF, SIPP, and PSID collect information that allows for the calculation of national-level metrics related to homeownership and home value by credential level. There are **data limitations**, however, with the levels of data available in these surveys. CE reports these values at the household level only, while SIPP, SCF, and PSID provide at least some detail at the individual level.²⁸³ None of these sources provide information at the program or institutional level, and only SIPP and CE can provide state-level data for some states. As noted, even the surveys with some individual-level responses are structured as household- or family-level surveys, so care is needed with individual-level responses. The Consumer Credit Panels hosted by the New York Federal Reserve and the University of California are data sources that include nationally representative samples of credit bureau data that may be possible to match with individual-level records at the state, institution, or program level to measure homeownership. This information is also available at the individual level for a fee directly from credit bureaus such as Equifax, which some institutions and states are using exploratorily.²⁸⁴

278 US Census Bureau, “Survey of Income and Program Participation (SIPP),” n.d.

279 University of Michigan, Institute for Social Research, “Panel Study of Income Dynamics (PSID),” n.d.

280 Jones, “Three-Quarters of Americans View Homeownership as Part of the American Dream,” 2025.

281 Short and Mazur, *Housing Availability and Affordability*, 2025.

282 Carroll and Cohen-Kristiansen, “Evaluating Homeownership as the Solution to Wealth Inequality,” 2021.

283 SHED and ASEC also include homeownership but with limited information about value or payments.

284 Lee and van der Klaauw, *An Introduction to the New York Fed Consumer Credit Panel*, 2010; California Policy Lab, University of California, “University of California Consumer Credit Panel (UC-CCP),” n.d.; and Equifax, “Ignite for Graduate Outcomes,” n.d.

While owning a home does confer a measure of wealth, the returns to homeownership are generally lower than those from investments such as the stock market—meaning that households with the income to make these investments in addition to paying for their primary residence are at a significant advantage when it comes to amassing **net worth**.²⁸⁵ The general **definition** of net worth is the total value of assets (what one owns) minus the total value of liabilities or debts (what one owes).²⁸⁶ Assets typically include checking, savings, and retirement accounts; equity in real estate, vehicles, and private companies; and other financial investments such as stocks, bonds, mutual funds, cryptocurrency, trusts, and annuities. Liabilities include mortgages, consumer debt like credit cards and vehicle loans, educational debt, medical debt, and business loans.

As noted, measuring net worth offers an advantage over metrics such as savings or homeownership because individuals may make different choices about whether and how to invest their money—for example, some may choose to buy a home rather than save more for retirement. Net worth is agnostic to those choices since it counts all assets, which is why we recommend net worth as a measure over savings or homeownership—if the requisite data are available. However, while some sources facilitate measurement of student loan debt, student loan repayment, and homeownership for former students at the program or institutional level, no current sources readily allow measurement of net worth at that level.

In terms of **data sources**, the SCF provides the most complete picture of net worth among national-level surveys, with extensive questions on both assets and liabilities, many of which are asked at the individual level. Other possible sources include CE, PSID, and SIPP. There are **data limitations**, however, with these surveys. All of these surveys collect at least some information on the individual level, with the exception of the Consumer Expenditure Survey, which is at the household level only. None of these sources provide information at the program or institutional level, and only SIPP and CE can provide state-level data for some states. As noted, even the surveys with some individual-level responses are structured as household- or family-level surveys, so care is needed with individual-level responses.

According to the Survey of Consumer Finances, householders with a bachelor's degree or higher have a median net worth that is more than four times the median net worth of householders with a high school diploma.²⁸⁷ However, the relationship between postsecondary education and wealth is complicated by the legacy of racial/ethnic wealth gaps that have persisted over generations.²⁸⁸

285 Carroll and Cohen-Kristiansen, "Evaluating Homeownership as the Solution to Wealth Inequality," 2021.

286 Addo, *Ensuring a More Equitable Future*, 2021.

287 Households led by individuals with a college degree have median \$465,000 in net worth versus \$107,000 for households led by individuals with a high school diploma as the highest level of attainment. Board of Governors of the Federal Reserve System, *Changes in U.S. Family Finances from 2019 to 2022*, 2023.

288 In fact, research has shown that median wealth among Black/African American households led by individuals with a college degree is actually lower (\$23,000) than that among white households led by individuals with less than a high school diploma (\$35,000). Addo, *Ensuring a More Equitable Future*, 2021.

So while net worth is an important indicator of the value of postsecondary credentials, it must be interpreted in the broader context of wealth in the US.

Public Economic Benefits

Postsecondary education also confers considerable **public economic benefits**, including monetary benefits that often exceed the public costs, which can be assessed through cost-benefit analyses and other methods.²⁸⁹ The basic **definition** of public economic benefits is the total public benefit minus the total public net cost over a specified timeframe. These benefits are commonly measured by comparing the public investment (e.g., local, state, federal) to the increases in tax revenue, consumption, and productivity, as well as the decreases in spending on public assistance, health, and criminal justice associated with the increases in employment and earnings among people with credentials.²⁹⁰ Increases in postsecondary attainment are also associated with increases in state and national Gross Domestic Product (GDP), which measures increases in personal consumption and public- and private-sector investments that contribute to economic activity and growth.²⁹¹ The Georgetown University Center on Education and the Workforce (CEW) estimates that equalizing postsecondary educational attainment by race/ethnicity and income would add nearly \$1 trillion in monetary gains to society annually.²⁹² CEW and others have measured these public economic benefits at the local, state, or national levels using publicly available data and methodologies.²⁹³ For an in-depth explanation of how to calculate public economic benefits using cost-benefit analysis at the state level, see the third report in this series, *A Framework for Assessing the Value of Postsecondary Education and Training*.²⁹⁴ Alternatively, some state systems and institutions use the IMPLAN tool to measure the economic impact of specific institutions on their local economies through employment of the local workforce, consumption of local goods, and broader economic activity generated by colleges and universities.²⁹⁵

289 Matsudaira, *The Economic Returns to Postsecondary Education*, 2021.

290 Pender et al., *Education Pays 2026*, 2026; and Matsudaira, *The Economic Returns to Postsecondary Education*, 2021.

291 Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

292 Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

293 Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021; and Matsudaira, *The Economic Returns to Postsecondary Education*, 2021.

294 Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026. That report also includes a related metric that aggregates the lifetime earnings return on investment by credential level for all prime-age workers in the labor force in a state.

295 Information about IMPLAN is available at <https://implan.com/>.

Well-being: Are postsecondary education and training credentials improving the quality of graduates' lives and communities?

In addition to improving the economic outcomes of people with credentials, postsecondary education can also contribute to improving their well-being. While some of the increases in well-being associated with postsecondary education likely stem from associated increases in employment and earnings,²⁹⁶ higher levels of educational attainment have been linked to increased health and wellness and civic and community engagement.²⁹⁷ It is important to recognize both the monetary and nonmonetary benefits of postsecondary education so as not to underestimate the full value for both individuals and society, especially given the public's current skepticism about education and training after high school. As quoted in the first report in this series, *From Mann to Markets*, James Heckman and colleagues have said that “ignoring these [non-market] outcomes could lead policymakers to greatly underestimate the benefits of supporting education.”²⁹⁸

It is also important to recognize that people without postsecondary education can and do experience well-being, especially as it manifests in engaging with their communities through civic participation and volunteerism. In the Postsecondary Value Model, the relationship between postsecondary education as an output and well-being as an outcome is not as direct as the relationship with employment and earnings given family, community, and other influences,²⁹⁹ but well-being is an important aspect of postsecondary value nonetheless. This section will focus on metrics related to personal well-being (e.g., **quality of life, physical and mental health**), social well-being (**social capital, charitable activities**), and national well-being (**civic engagement**).

Personal Well-Being

Employing the widely used Cantril Scale, researchers at Gallup have created a life evaluation index that asks individuals to rate their current and anticipated **quality of life**. The general **definition** for a metric measuring quality of life is the percentage of former students who evaluate their current and anticipated life circumstances positively at a specified timeframe after exit. Based on their

296 Marken, *Ensuring a More Equitable Future*, 2021.

297 It is important to note that most research connecting education and well-being is correlational in nature given the difficulty of conducting causal studies on these multifaceted issues. Also, some of the literature focuses on the increase in nonmonetary benefits based on years of educational attainment rather than credential attainment. Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021; Gallup and Lumina Foundation, *Education for What?*, 2023; Trostel, *It's Not Just the Money*, 2017; and Pender et al., *Education Pays 2026*, 2026.

298 Strohl et al., *From Mann to Markets*, 2026, quoting Heckman et al., “The Nonmarket Benefits of Education and Ability,” 2018.

299 In a previous review of the literature on nonmonetary benefits, Carnevale et al. noted that “it is difficult to distinguish between direct and indirect benefits, including those that might accrue as a result of the higher earnings associated with higher educational attainment” and “it is difficult, if not impossible, to establish causal relationships between higher education and nonmonetary benefits.” Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021.

responses to the Cantril Scale, people are categorized as thriving, struggling, or suffering. People who evaluate their quality of life as “thriving” report better health, less stress, and more happiness than those who report struggling or suffering. Gallup has found that college graduates’ assessments of the value of their postsecondary education are highly and positively correlated with their life evaluation on this scale. Gallup also uses another more detailed assessment to understand five elements of well-being: purpose well-being, social well-being, financial well-being, community well-being, and physical well-being. While all of these indicators are positively correlated with postsecondary education, purpose and financial well-being were found to have the strongest relationship with the likelihood that graduates rate their postsecondary education as worth the cost (along with earnings and employee engagement). In terms of **data sources**, Gallup’s instruments can be used to assess well-being at the national, state, and institutional levels. Their work with institutions through the Gallup Alumni Survey (formerly the Gallup-Purdue Index) has further shown that critical experiences during postsecondary education—including experiential learning, supportive relationships, and coursework relevance to current job—are related to higher post-graduation well-being levels.³⁰⁰ The **data limitations** inherent in using a voluntary, proprietary survey mean that there is no readily available public source for this information at this time and that response bias may skew the results.

Considerable research has documented the relationship between postsecondary education and key determinants of **physical and mental health**. People with more postsecondary education tend to report better overall physical and mental health, which includes engaging in healthier behaviors and experiencing lower incidence of chronic illness, pain, and anxiety/depression, which generally leads to higher life expectancy. Improved health outcomes among people with postsecondary education stem from a number of factors, including greater access to health insurance; preventative medical care; and healthier neighborhood, home, and work environments (e.g., lower pollution, fewer job hazards).³⁰¹ According to data from the Annual Social and Economic Supplement (ASEC) to the US Census Bureau’s Current Population Survey, about 75 percent of people with bachelor’s degrees or higher nationally self-reported a “very good” or “excellent” health status, compared with only 51 percent of people with a high school diploma.³⁰² A basic **definition** for this metric is the percentage of former students who rate their overall health status as high at a specified timeframe after exit; this may also be measured among workers by credential level based on data availability. This overall assessment is likely sufficient for most value-related use cases, although more information is available from additional surveys at the national, state, and institutional levels.

300 Marken, *Ensuring a More Equitable Future*, 2021; Gallup and Lumina Foundation, *Education for What?*, 2023; and Gallup, “Measuring College and University Outcomes,” n.d.

301 This overview of the health and wellness research is adapted from Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021. See also Pender et al., *Education Pays 2026*, 2026; and Gallup and Lumina Foundation, *Education for What?*, 2023.

302 Trostel, *It’s Not Just the Money*, 2017.

There are several potential **data sources** reporting on health well-being at the national, state, and institutional levels. The National Health Interview Survey (NHIS) provides a wealth of information on individuals' physical and mental health by credential level at the regional, state, and national levels, including an overall health status measure,³⁰³ and ASEC provides national estimates on overall health with state data available.³⁰⁴ As noted, the Gallup Alumni Survey includes physical wellness and can be administered at various levels, including the institutional or program level. Beyond individuals' health status, public expenditures on healthcare from the local to the national levels can be measured in relation to educational attainment to further quantify the value of postsecondary education on health outcomes, as discussed in detail in the third report in this series, *A Framework for Assessing the Value of Postsecondary Education and Training*.³⁰⁵

Social Well-Being

Social capital is an input that facilitates educational access and attainment, but it is also an outcome related to higher levels of postsecondary education.³⁰⁶ Social capital refers to “features of social organization, such as networks, norms, and social trust, that facilitate coordination and cooperation for mutual benefit.”³⁰⁷ People with postsecondary education often have access to the types of social networks that enhance their professional and personal lives.³⁰⁸ Using Opportunity Insights' Social Capital Atlas³⁰⁹ dataset, several researchers found that postsecondary education can improve students' access to social capital including “the connectedness and engagement of students across different economic and social groups that can lead to improved upward mobility.” These researchers found differences in the social capital available to students at different colleges and universities, with institutional characteristics such as higher graduation rates associated with higher access to social capital. These researchers also found that “economic connectedness” across socioeconomic strata is correlated with higher earnings after postsecondary education even after accounting for the characteristics of the institution.³¹⁰

A general **definition** of a social capital metric is the percentage of former students experiencing high levels of economic connectedness at a specified timeframe after exit; this can also be measured for workers by credential level depending on data availability. Several **data sources** are

303 US Centers for Disease Control, *National Health Interview Survey*, n.d.; and National Center for Health Statistics, “2025 National Health Interview Survey (NHIS) Questionnaire,” 2025.

304 US Census Bureau, “Guidance for Health Insurance Data Users,” n.d. CPS ASEC is mainly useful for examining timely estimates of the insured and uninsured populations at the national level. It can be used for state-level estimates, trends, and differences (through multiyear averages), although caution is recommended for some small states that may have large sampling errors.

305 Ward et al., *It's Complicated*, 2021; and Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

306 Coleman, “Social Capital in the Creation of Human Capital,” 1988.

307 Putnam, *Bowling Alone*, 1995, as quoted in Reeves, “Feeling Good or Doing Good?,” 2019.

308 Orrell et al., “The Social Workplace,” 2022.

309 The Opportunity Insights Social Capital Atlas is available at <https://socialcapital.org>.

310 Chetty et al., “Social Capital I,” 2022; and Rzepczynski and Kalil, “Social Capital and the College Experience,” 2024.

available to help postsecondary leaders measure social capital as a dimension of postsecondary value, though there are **data limitations** in terms of level of data available and the ease with which the data can be used. The General Social Survey administered by the National Opinion Research Center (NORC) at the University of Chicago provides national-level indicators related to social capital,³¹¹ though state and institutional leaders may find it more feasible to administer Gallup's Alumni Survey or other instruments to measure social and community well-being,³¹² or to use the publicly available Social Capital Atlas constructed by Opportunity Insights (OI) instead. OI uses anonymized social media data to construct three measures related to social capital—economic connectedness, social cohesiveness, and civic engagement—that are available by county, zip code, high school, and postsecondary institution.³¹³

Engagement in **charitable activities** also increases with levels of postsecondary education. The College Board reports that people with bachelor's and graduate degrees volunteer at more than twice the rate of people with high school diplomas alone,³¹⁴ and the Lumina-Gallup poll reports that charitable contributions follow a similar pattern.³¹⁵ The general **definition** of a metric related to charitable activities measures the percentage of former students who donate money or time as a volunteer within a specified timeframe after exit; charitable activities may also be measured among workers by credential level depending on data availability. There are several **data sources** for federal, state, and institutional leaders who want to measure the relationship between postsecondary education and charitable activities. At the national and state levels, the Civic Engagement and Volunteering (CEV) Supplement to the US Census Bureau's Current Population Survey provides robust data about charitable activities by credential level.³¹⁶ For institutions and programs, the Gallup Alumni Survey asks questions about volunteering and charitable giving.³¹⁷ A **data limitation** to consider is that individuals with higher educational attainment may be more likely to engage in charitable activities because the higher income associated with postsecondary education allows them to more easily engage in these activities.

311 NORC at the University of Chicago's General Social Survey is available at <https://gss.norc.umd.edu/>.

312 Gallup, "Measuring College and University Outcomes," n.d.

313 Opportunity Insights, "Social Capital Atlas," n.d.

314 Forty percent of people with bachelor's degrees and 51 percent of people with graduate degrees volunteer, compared with 19 percent of people with a high school diploma alone. Pender et al., *Education Pays 2026*, 2026.

315 Sixty percent of people with associate's degrees or higher have donated to charity, compared with 38 percent of people with a high school diploma alone. Gallup and Lumina Foundation, *Education for What?*, 2023.

316 US Census Bureau, *Civic Engagement and Volunteering Supplement*, 2024.

317 Gallup, "Measuring College and University Outcomes," n.d.

Civic Well-Being

People with more postsecondary education are much more likely to participate in **civic engagement** activities, especially voting.³¹⁸ They are not only more likely to vote, but also to follow elections in the news, engage in discussions about politics, and contact public officials. Research has shown a discernable link between postsecondary education and civic engagement, as the knowledge gained through education can equip graduates with critical-thinking skills that support them as informed and engaged voters.³¹⁹ People with postsecondary education are also more likely to hold pro-democracy, anti-authoritarian attitudes.³²⁰

A general **definition** of a metric on civic engagement is the percentage of former students who vote at a specified time after exit; voting may also be measured among workers by credential level depending on data availability. State and institutional leaders who want to measure the relationship between postsecondary education and voting in their area can turn to several **data sources**. The Census Bureau's CPS Voting and Registration Supplement is collected biennially and can be used to examine this information by credential level at the national and state levels.³²¹ Institutions can participate in several surveys to better understand the civic engagement of their students, such as the Higher Education Research Institute's (HERI) suite of surveys that offer questions related to students' civic orientation, awareness, and engagement, including self-reported voting behavior.³²² The National Survey of Student Engagement (NSSE) also offers questions about becoming an active and informed citizen and an optional module on civic engagement that assesses institutions' emphasis on civic issues.³²³ While these surveys are typically offered to enrolled students, institutions can also explore whether students who graduate demonstrate higher civic awareness and engagement than students who do not complete their programs.³²⁴

318 Seventy-nine percent of people with bachelor's degrees or higher voted in the 2024 election, compared with 53 percent of people with only a high school diploma. Pender et al., *Education Pays 2026*, 2026.

319 Trostel, *It's Not Just the Money*, 2017; Carnevale et al., *The Monetary Value of Economic and Racial Justice in Postsecondary Education*, 2021; and Fernandez, "Turnout for What?," 2021.

320 Carnevale et al., *The Role of Education in Taming Authoritarian Attitudes*, 2020.

321 US Census Bureau, "About Voting and Registration," n.d.

322 Higher Education Research Institute, University of California, Los Angeles, "Overview of Surveys," n.d.

323 National Survey of Student Engagement, Indiana University, "Civic Engagement Topical Module (2025)," n.d.

324 We did not include the National Study of Learning, Voting and Engagement (NSLVE) because it is currently being evaluated by ED for adherence to FERPA. If ED clears further use of NLSVE, it can be used to obtain information about students' aggregate voting rates in national elections since 2012. NSLVE has partnered with the National Student Clearinghouse (NSC) in the past to match students' records with public voting records. This match provides information on whether students are registered to vote and whether they have voted, but importantly does not include information about how they voted. NSLVE received de-identified data from NSC to process and share with participating institutions. Tufts University Tisch College, "National Study of Learning, Voting and Engagement," n.d.

PART 2

The Use Cases for Value Metrics

The Postsecondary Value Model presented in this report provides practical information about some of the most prominent and prevalent value-related metrics in the field at this time. We have organized the framework to help stakeholders identify which metrics they can use to answer key questions about postsecondary value related to investment inputs, education outputs, and primary (employment, earnings) and secondary (wealth, well-being) value-related outcomes. In this section, the report also aims to help stakeholders identify which metrics from the value model may be most useful for their contexts and use cases. Here, we recommend value-related metrics for six core use cases and audiences:

- transparency for students and workers
- improvement for practitioners
- accountability for leaders
- policy and funding for policymakers
- workforce development for employers
- case-making for the public

The same value-related metrics may be useful in a number of different use cases. However, the level of measurement or the comparison for benchmarking (e.g., program, institution, state, nation) may differ depending on the question the stakeholder is trying to answer. As noted, it is extremely important for stakeholders to ask not just *whether* students are experiencing value, but *which* students are experiencing value, requiring stakeholders to disaggregate the data by the groups relevant for their context. Relatedly, researchers and policymakers have discussed whether and how to account for student and institutional characteristics—as well as changes in the labor market—when using value-related metrics. While these are complex issues that require careful consideration, disaggregated value-related metrics should be readily available for transparency, improvement, and case-making purposes without adjustment to the extent that privacy considerations allow. For accountability, funding, or other policy use cases that extend beyond setting minimum standards or that provide incentives, stakeholders might consider whether to take these factors into account. See the third report in this series, *A Framework for Assessing the Value of Postsecondary Education and Training*, for a more in-depth discussion.³²⁵

Transparency use cases focus on providing prospective students and families with the information they need to make informed decisions about whether the postsecondary programs and institutions

³²⁵ Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026. See also pages 65–71 of the Postsecondary Value Commission, *Equitable Value*, 2021.

they are considering help students like them earn credentials with labor-market value. Prospective students are likely most interested in the answers to these questions for graduates of the programs and institutions that they are considering; however, students should also be informed about how many students actually transfer or graduate and what happens to students who do not. Key questions that students should have the information to answer include the following:

- How much will it cost me? (Cumulative net cost/debt)
- Will I get the education I need? (Success rate, graduate education rate)
- Will I be prepared for a job in my field of interest? (Skills/competencies)
- Will I get a job in my field of interest? (Job placement rate)
- What will I earn in my field of interest? (Earnings premium)
- Will I be able to repay my loans? (Loan repayment status)
- Will the investment pay off for me? (Return on investment)

A number of consumer information tools provide students with data on costs and outcomes with the goal of helping them make informed decisions about their postsecondary pathways. The College Scorecard provides an easily accessible dashboard that helps students assess the potential value of prospective programs and institutions, with data on graduation rates, net costs, debt, loan repayment, and earnings after graduation. The Scorecard does not provide metrics on return on investment, employment, or graduate education at this time, but could add this information with the existing underlying dataset. The US Department of Labor publishes completion rates, employment rates, and earnings for WIOA program participants at the provider level on their Training Provider Results website.³²⁶ A number of states publish alumni outcomes by institution and program; for example, the Iowa Board of Regents publishes earnings, percentage of earnings spent on debt, and percentage of students who earn advanced degrees within 10 years.³²⁷ Efforts are also underway to help students and workers gain access to information about their own learning experiences and outcomes to help them match more effectively with specific education and career opportunities; these efforts make use of learning and employment records (LERs) that are poised to become more widely available via digital wallets and other tools.³²⁸

Improvement use cases for programs and institutions focus on using data to increase value by identifying, assessing, and addressing gaps in students' educational experiences and outcomes. Beyond data available for transparency purposes, practitioners need additional data to further investigate whether their students are gaining access to quality, workforce-relevant learning

326 US Department of Labor, Employment and Training Administration, "Training Provider Results," n.d.

327 Iowa Board of Regents, "Recent Alumni Career Outcomes," n.d.

328 Jobs for the Future Labs, *Building a Skills-Based Talent Marketplace*, 2022; US Chamber of Commerce Foundation, "Introducing the LER Hub," 2020; and Education Design Lab, "Learning and Employment Records (LERs)," n.d.

experiences both in and out of the classroom. Value-related metrics used for improvement purposes should disaggregate by students' success status (whether they transferred and/or completed) to help practitioners focus their response. Key questions that practitioners—staff, faculty, and administrators—should have the information to answer include the following:

- Are we ensuring that our programs are accessible to all students in our service area? (Access ratio)
- Are we supporting our students to successfully complete or transfer from our programs in a timely way? (Success rate)
- Are we effectively teaching our students workforce-relevant skills? (Skills/competencies)
- Are we preparing our students for further education in their fields of interest (if needed)? (Graduate education)
- Are we helping our students gain quality employment in their fields of interest? (Job placement rate, job benefits)
- Are our students earning enough in their fields of interest? (Return on investment, earnings premium)
- Are our students advancing in their careers in their fields of interest? (Earnings growth, job advancement)

To ensure their students are earning credentials of labor-market value, practitioners should consider whether the courses, experiences, and programs they are offering are relevant to the workforce, whether their students are learning and can demonstrate key workforce-relevant skills, and whether students are prepared for and performing well in jobs that lead to careers in their fields of interest. This information can serve as the basis for a meaningful feedback loop to improve program quality. A growing number of postsecondary institutions and states around the country are working to strengthen the workforce relevance of their programs.³²⁹ Supported by the Beyond Completion Initiative,³³⁰ the University of Texas system has expanded its Texas Credentials for the Future initiative, which infuses career readiness into the undergraduate curriculum by including relevant industry microcredentials and skills badges at no additional cost to students with a focus on low-earning majors.³³¹ The Pennsylvania State System of Higher Education (PASSHE) has also developed partnerships between universities and employers to improve workforce and skills alignment, including efforts to design curricula that address regional workforce shortages.³³²

329 See, for example, the American Association of State Colleges and Universities, "Promising Practices," n.d.

330 Strada Education Foundation, "Beyond Completion Challenge," n.d.

331 University of Texas System, "Texas Credentials for the Future," n.d.

332 Pennsylvania's State System of Higher Education, "PASSHE is Meeting PA's Workforce Needs," n.d.

Use cases related to **accountability** at the state or federal level tend to focus on minimum performance thresholds or floors on value-related metrics for specific programs or institutions. These metrics might include success (completion and upward transfer) rates, job placement rates, earnings thresholds including return on investment, and/or loan repayment metrics (e.g., debt-to-earnings ratio). Outcomes-based funding structures also use these and other value-related metrics, including return on investment and alignment with high-demand fields, for base and incentive funding.³³³ Policymakers often publish these metrics for transparency for prospective students as well as the public as a form of accountability. Value metrics used for accountability purposes often focus only on outcomes for program graduates (e.g., job placement, earnings, loan repayment), though we recommend that policymakers should also include non-graduates and/or include program success rates in accountability structures to ensure protections for all enrolled students. While accountability is a type of policy use case (discussed below), the intended users are the leaders of postsecondary institutions who are held responsible for their students' outcomes. Key questions that postsecondary educational leaders—and the policymakers assessing their performance—should have the information to answer include the following:

- Are our programs and institutions enrolling students that reflect our service area? (Access ratio)
- Are we ensuring that our programs and institutions are affordable for all students? (Cumulative net cost/debt)
- Are we supporting our students to successfully complete or transfer from our programs and institutions? (Success rate)
- Are we helping the students/graduates in our programs and institutions gain employment? (Job placement rate)
- Are we ensuring that the students/graduates from our programs and institutions can repay their loans? (Loan repayment rate)
- Are the students/graduates from our programs and institutions earning enough to get a return on their investment? (Return on investment)
- Are our institutions offering programs relevant to workforce needs? (Workforce alignment)

At the federal level, new accountability measures passed by Congress in 2025 include minimum earnings tests for all undergraduate and graduate programs, as well as minimum completion rates, job placement rates, and return on investment for the new Workforce Pell grant program.³³⁴ Outcomes-based funding models in several states include job placement rates (e.g., Tennessee), earnings sufficiency (e.g., California, West Virginia), return on investment (e.g., Texas), and

333 Carroll, *Investing in Value*, 2025.

334 US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Pell Grant Exclusion Relating to Other Grant Aid; and Workforce Pell Grants," 2026; and US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability," 2026.

workforce alignment (e.g., Arkansas, Louisiana, Florida).³³⁵ For a more in-depth discussion about the application of accountability measures by state-level policymakers, including considerations for high-social-value, lower-wage occupations, see the third report in this series, *A Framework for Assessing the Value of Postsecondary Education and Training*.³³⁶

Use cases related to **policy** focus more broadly than accountability use cases to assess whether the education system is producing value as a whole. These policy use cases address whether the state is benefiting from a more educated population in terms of meeting workforce needs (including filling openings in high-social-value but lower-paid occupations), generating revenue beyond the public investment in postsecondary education, and other aggregate public benefits such as increases in tax revenues and gains in GDP. Key questions that policymakers should have the information to answer include the following:

- Is there sufficient investment in the postsecondary and workforce training system? (Institutional, state, federal, and private expenditures)
- Is the system producing enough postsecondary credentials to meet workforce needs? (Attainment rate)
- Is the system producing credentials aligned with workforce needs in specific fields? (Workforce alignment)
- Are employers offering high-quality jobs to graduates of the system? (Earnings sufficiency, earnings premium, job benefits)
- Is the system generating a public and private return on investment? (Return on investment)
- Is the system producing broad economic benefits? (Public economic benefits)
- Is the system producing community-engaged adults? (Charitable activities, civic engagement)

The California State University (CSU) System and the University of California (UC) System have both produced reports to demonstrate the value-related outcomes associated with investment in their institutions and students. The CSU report includes the estimated increased tax revenue, spending, and industry activity associated with the increased earnings of graduates from their system, while the UC report also includes reduced spending on social services and increases in civic engagement.³³⁷ All of this information should be aggregated and/or anonymized when reported to protect the privacy of residents, especially information about their civic activities such as voting.

³³⁵ Carroll, *Investing in Value*, 2025.

³³⁶ Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

³³⁷ Institutional Research & Academic Planning, University of California Office of the President, *Fiat Lux*, 2021; and ICF, *Moving California Forward*, 2025.

Workforce development use cases focus on whether the postsecondary education system is producing value for the regional, state, or national economy by preparing graduates with workforce-ready skills aligned with labor-market needs. While the metrics in this report are generally aimed at the effectiveness of the postsecondary education system in developing an educated workforce, employers also bear responsibility for performance on some of these metrics. It is critical for the private and education sectors to enter into partnerships to support career pathways through recruitment, training, and work-based learning that leads to quality employment. Key questions that business leaders—and their postsecondary counterparts—should have the information to answer include the following:

- Is there an adequate supply of graduates from the postsecondary and workforce training system to meet workforce needs? (Attainment rate)
- Are new graduates from the system ready to hire? (Job placement rate)
- Is the system producing credentials aligned with our workforce needs in specific fields as employers? (Workforce alignment, skills/competencies)
- Are our investments as employers in the system generating a return on investment? (Return on investment)
- Are graduates from the system engaged and satisfied in their work? (Job benefits, job engagement)
- Are graduates from the system prepared to advance in their jobs? (Job advancement)

A growing number of states are publishing metrics on the extent to which their postsecondary education systems are meeting their workforce needs. For example, the State Council of Higher Education for Virginia (SCHEV) publishes Institutional Fact Packs that include details about workforce alignment, such as multiyear trends in the percentage of graduates obtaining jobs in the state's high-growth employment sectors.³³⁸ The State Opportunity Index, produced by Strada Education Foundation, evaluates employer alignment in every state by measuring the percentage of bachelor's degree holders employed in jobs that require postsecondary credentials and the ratio between supply and demand for a key set of high-demand, high-wage entry-level jobs.³³⁹

Case making uses focus even more broadly on whether postsecondary education is generating value that benefits every population, addresses inequalities, and supports the well-being of individuals and society. These metrics make the case that postsecondary education is not merely a private good for the individuals who receive credentials but also a public one with societal benefits that warrant public investment. These metrics also make the case that postsecondary education not only produces monetary value, but also improves the quality of our lives, our communities, and our democracy. Key questions that the public should have the information to answer include:

338 State Council of Higher Education for Virginia, "Institutional Fact Packs," n.d.

339 Strada Education Foundation, *State Opportunity Index*, 2025.

- Are postsecondary and workforce credentials broadly available to everyone who can and wants to benefit from it? (Attainment rates)
- Are credentials worth the cost to individuals and the public? (Return on investment, public economic benefits)
- Do credentials support economic mobility in our society? (Economic mobility rate)
- Do credentials help ameliorate societal wealth inequalities? (Savings/retirement, homeownership, net worth)
- Do credentials improve the quality of neighborhoods and communities (Social capital, charitable activities)?
- Do credentials promote greater health and happiness that bolsters our economy and society? (Quality of life, physical and mental health)
- Do credentials help strengthen our democracy? (Civic engagement)

The aforementioned UC system report also includes evidence of increased economic mobility, volunteering, homeownership, health, and happiness among their graduates.³⁴⁰ The Kentucky Council on Postsecondary Education similarly produces a report using publicly available data from national surveys (e.g., Census) to demonstrate how more postsecondary education is correlated with improved employment, health, and civic outcomes in the state.³⁴¹ Given the broader public concerns about the value of postsecondary education—especially in relation to the cost—this use case is critically important to ensuring that both individuals and society continue to understand the benefits of investing in and pursuing postsecondary credentials.

340 Institutional Research & Academic Planning, University of California Office of the President, *Fiat Lux*, 2021.

341 Center for Business and Economic Research, Gatton College of Business and Economics, University of Kentucky, *Selected Returns on Investments in Higher Education in Kentucky*, 2024.

PART 3

The Future of Value Research

Research over the past five or more years has put a major focus on developing metrics for various aspects of postsecondary value. In this report, we summarize the current state of the value metrics landscape to support stakeholders in using these metrics to answer critical questions for key use cases. The next phase of the work needs not only to measure value but to identify, implement, and evaluate the factors or levers that various stakeholders can employ to increase the value of postsecondary credentials. In particular, this phase needs to focus on the return-on-investment metrics that are becoming more widely used, including for accountability purposes. This research will need to consider how some of the metrics in this framework interact with and predict one another to increase or decrease value. For instance, the Postsecondary Value Model can be used to further investigate initial research showing that whether—and which—students earn more than high school graduates and enough to recoup their costs in a reasonable timeframe is affected by the following factors:³⁴²

- **Access**, or whether students enroll in postsecondary education at all, what type of institutions they attend, and what programs of study they enter;
- **Affordability**, or how much students pay for their postsecondary education in relation to their income after applying all sources of grant aid, including how much they borrow to cover the costs with loans;
- **Success**, or whether students transfer to continue their studies, whether they complete their studies, and how long it takes them to earn credentials;
- **Further education**, or whether students continue their studies to earn graduate credentials or earn additional credentials that boost their employment and earnings, such as certifications or licenses;
- **Employment and earnings**, or whether students are finding employment in quality jobs that lead to high enough earnings;
- **Expenditures**, or whether students attend institutions that are adequately funded, especially in regard to instruction and student support services; and
- **Labor market**, or whether employment is available in students' fields of interest in their region or state, whether there is alignment between supply and demand in their area, and the prevailing wages for their fields.

Leaders of states, institutions, and programs need to understand not just how they are performing on value metrics like return on investment, but also how they are performing on the factors that affect it so

342 Postsecondary Value Commission, *Equitable Value*, 2021.

they can identify policy and practice levers with the potential to increase value. To that end, future analyses will need to identify factors that affect or predict value at both the student and system levels. Identifying these factors can allow practitioners to help students gain access to the experiences and supports that will maximize the value of their credentials. Identifying these factors can also help administrators and policymakers ensure that programs and institutions have the resources to optimize educational quality. These future analyses will require data that are benchmarked for comparison and disaggregated by student and institutional characteristics to enable key stakeholders to set goals and allocate support.

Through these types of analyses, some programs and institutions may find, for example, that they need to focus their efforts to increase value on improving completion rates or decreasing time to credential by improving the advising experience. Others may find that they need to increase employment and earnings by more closely aligning their learning experiences with local workforce needs, including through industry credentials and work-based learning experiences. Still others may determine that their students are not experiencing value because they must pay or borrow too much in relation to their expected earnings, and they may need to address this discrepancy with more targeted financial aid, especially for students with limited income or wealth or students entering higher social value but lower-wage fields. And some states may find that they are underinvesting in certain programs or institutions, especially community colleges or minority-serving institutions, or underinvesting in workforce development in certain regions, thereby limiting whether students can earn credentials with labor-market value (see Table 6 for examples).

Current efforts to ensure that more students are earning credentials of value are in an early stage with data and analytics, comparable to where completion initiatives were 20 years ago. Descriptive analyses of value metrics have identified at least one specific challenge: that some institutions and programs appear to offer more value to their students than others, or offer more value to some of their students than to others. However, researchers and educational leaders have not yet conducted sufficient diagnostic analyses to understand why outcomes differ, nor have they conducted many predictive and prescriptive analyses to determine what to do to increase the chances that students will earn credentials of value.³⁴³ The future of value research will require both qualitative and quantitative analyses to identify the factors that affect value and the levers that can improve it. As postsecondary leaders embark on this new era, stakeholders must ensure that they have the information they need to set new value-related goals and implement data- and evidence-driven policies and practices to support all students in realizing postsecondary value.

343 Cote, “4 Types of Data Analytics to Improve Decision-Making,” 2021.

Key Drivers of Postsecondary Value: Diving into Return on Investment



Using the Postsecondary Value Model as a guide, the example in Table 6 explores the questions that postsecondary leaders might ask and the data they might need to better understand why their students—or why some of their students—are not receiving a return on their investment in postsecondary education and training. This information can be used to identify the appropriate practice and policy levers to improve ROI for students as further illustrated in Table 6, which presents some questions, supporting data, and practices and policies that stakeholders can use to address the questions.

TABLE 6. Identifying Levers that Can Improve ROI in Postsecondary Education and Training

	Access	Affordability	Transfer + completion	Employment + earnings	Further education	Expenditures	Labor market
Questions	Are all students gaining access to programs that offer ROI?	Are the costs of the program too high for students to experience ROI?	Are students not experiencing ROI because they are not succeeding in their programs?	Are students not experiencing ROI because they are not employed or are employed in low-wage jobs?	Are students bolstering their chances to experience ROI by gaining additional credentials?	Are institutions or programs that are not offering ROI receiving adequate funding?	Are students graduating into a robust job market that maximizes opportunities to experience ROI?
Data	Access rates by sector Access rates by program of study ROI access “deserts”	Cumulative net cost/debt Unmet need after grant aid and Student Aid Index Student share of cost	Annual transfer and completion rates First-year retention rates Time to credential	Time to initial job placement Earnings sufficiency in initial job Earnings growth in first five years	Certification/licensure rate Graduate education rate Job benefits that include further education/training	Funding per FTE by sector Funding per FTE for community colleges and Minority-Serving Institutions (MSIs) Funding per FTE for instruction and student support	Workforce alignment in area High-demand jobs in area Brain drain from area
Practices	Proactive advising prior to and in the first year, including for major selection Transfer advising focused on program articulation	Targeted aid to meet full need of lowest-income students Aid for students in high-social-value, low-pay fields with local demand	Support for students to enroll full time, including use of intersessions and summer sessions to reduce time to credential (TTC)	Provide career navigation support Require internships and other work-based learning experiences	Embed industry credentials or licensure preparation into curricula at no additional cost to students	Ensure adequate funding for instruction and student support	Broker partnerships with local industry and major national employers to create job pipelines
Policies	Provide funding incentives for institutions that help underserved students enter and complete high-demand programs Provide subsidies for high-social-value, low-pay fields to avoid shortages	Maintain or increase appropriations to ensure students do not bear a higher percentage of costs than the state	Include transfer and completion rates in accountability and outcomes-based funding structures along with ROI Streamline excess credits to credential including across institutions for transfer students	Fund and require paid work-based learning experience for all students/programs	Publish certification and licensure rates publicly by program Publish graduation rates for graduate programs	Equalize FTE expenditures for community colleges and MSIs	Require institutions to regularly review programs using state labor-market forecasts

References

- Abel, Jaison R., and Richard Deitz. "[The Cost of College Continues to Climb](#)." *Liberty Street Economics* (blog), Federal Reserve Bank of New York, June 3, 2019.
- Accreditation Commission for Education in Nursing (ACEN). "[Licensure/Certification Pass Rate](#)." Last updated September 29, 2025.
- Achieving the Dream. "[Achieving the Dream](#)." n.d.
- ACT. "[ACT WorkKeys Career Assessments](#)." n.d.
- Addo, Fenaba R. [Ensuring a More Equitable Future: Exploring and Measuring the Relationship Between Family Wealth, Education Debt, and Wealth Accumulation](#). Postsecondary Value Commission, May 2021.
- American Association of Colleges and Universities (AAC&U). "[VALUE: Authentic Evidence of Student Learning](#)." n.d.
- American Association of State Colleges and Universities. "[Promising Practices: Value in Action](#)." n.d.
- American Bar Association. "[Statistics](#)." n.d.
- American Institutes for Research. "[College Measures](#)." n.d.
- Andersson, Fredrik, Harry J. Holzer, Julia I. Lane, David Rosenblum, and Jeffrey Smith. "[Does Federally-Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms](#)." US Census Bureau, Center for Economic Studies, 2018.
- Aspen Institute. "[Good Jobs Champions Group: Statement on Good Jobs](#)." n.d.
- Belfield, Clive R., Davis Jenkins, and John Fink. [Early Momentum Metrics: Leading Indicators for Community College Improvement](#). Community College Research Center, Teachers College, Columbia University, July 2019.
- Bettinger, Eric. "[How Financial Aid Affects Persistence](#)." NBER Working Paper 10242. National Bureau of Economic Research, January 2004.
- Bettinger, Eric, Oded Gurantz, Laura Kawano, Bruce Sacerdote, and Michael Stevens. "[The Long-Run Impacts of Financial Aid: Evidence from California's Cal Grant](#)." *American Economic Journal: Economic Policy* 11, no. 1 (2019): 64–94.
- Black, Sandra E., Jeffrey T. Denning, Lisa J. Dettling, Sarena Goodman, and Lesley J. Turner. "[Taking It to the Limit: Effects of Increased Student Loan Availability on Attainment, Earnings, and Financial Well-Being](#)." NBER Working Paper 27658. National Bureau of Economic Research, August 2020. Revised February 2023.

Board of Governors of the Federal Reserve System. "[2022 Survey of Consumer Finances](#)." 2023.

Board of Governors of the Federal Reserve System. [Changes in U.S. Family Finances from 2019 to 2022: Evidence from the Survey of Consumer Finances](#). Board of Governors of the Federal Reserve System, October 2023.

Board of Governors of the Federal Reserve System. "[Retirement Accounts by Education of Reference Person](#)" (data visualization), Survey of Consumer Finances, last updated November 2, 2023.

Bowen, H.R. *The Costs of Higher Education: How Much Do Colleges and Universities Spend Per Student and How Much Should They Spend?* Jossey Bass Publishers, 1980.

Brown, Courtney. "[Reflecting on 15 Years: We Are a Stronger Nation](#)." *Lumina Foundation*, January 30, 2025.

Bulman, George B., and Caroline M. Hoxby. "[The Returns to the Federal Tax Credits for Higher Education](#)." NBER Working Paper 20833. National Bureau of Economic Research, January 2015.

Burning Glass Institute. "[The Credential Value Index](#)." n.d.

California Community Colleges Chancellor's Office. "[Salary Surfer](#)." n.d.

California Cradle to Career Data System. "[Pathways to College in California](#)." n.d.

California Policy Lab, University of California. "[University of California Consumer Credit Panel \(UC-CCP\)](#)." n.d.

Carnegie Classification of Institutions of Higher Education. "[2025 Student Access and Earnings Classification](#)." n.d.

Carnegie Classification of Institutions of Higher Education. "[Opportunity Colleges and Universities](#)." n.d.

Carnevale, Anthony P., Kathryn Peltier Campbell, Ban Cheah, Megan L. Fasules, Artem Gulish, Michael C. Quinn, Jenna R. Sablan, Nicole Smith, Jeff Strohl, and Sarah Barrese. [The Monetary Value of Economic and Racial Justice in Postsecondary Education: Quantifying the Potential for Public Good](#). Postsecondary Value Commission, 2021.

Carnevale, Anthony P., Ban Cheah, and Emma Wenzinger. [The College Payoff: More Education Doesn't Always Mean More Earnings](#). Georgetown University Center on Education and the Workforce, 2021.

Carnevale, Anthony P., Ban Cheah, Martin Van Der Werf, and Artem Gulish. [Buyer Beware: First-Year Earnings and Debt for 37,000 College Majors at 4,400 Institutions](#). Georgetown University Center on Education and the Workforce, 2020.

Carnevale, Anthony P., Megan L. Fasules, and Kathryn Peltier Campbell. [Workplace Basics: The Competencies Employers Want](#). Georgetown University Center on Education and the Workforce, 2020.

- Carnevale, Anthony P., Artem Gulish, and Kathryn Peltier Campbell. [*If Not Now, When? The Urgent Need for an All-One-System Approach to Youth Policy*](#). Georgetown University Center on Education and the Workforce, 2021.
- Carnevale, Anthony P., and Zachary Mabel. [*Enhancing How We Measure Individual Colleges' Contributions to Economic Mobility*](#). American Council on Education and Carnegie Foundation for the Advancement of Teaching, April 2024.
- Carnevale, Anthony P., Nicole Smith, Lenka Dražanová, Artem Gulish, and Kathryn Peltier Campbell. [*The Role of Education in Taming Authoritarian Attitudes*](#). Georgetown University Center on Education and the Workforce, 2020.
- Carnevale, Anthony P., Nicole Smith, Martin Van Der Werf, and Michael C. Quinn. [*After Everything: Projections of Jobs, Education, and Training Requirements through 2031*](#). Georgetown University Center on Education and the Workforce, 2023.
- Carnevale, Anthony P., Jeff Strohl, Kathryn Peltier Campbell, Artem Gulish, Ban Cheah, Emma Nyhof, and Lillian Fix. [*Learning and Earning by Degrees: Gains in College Degree Attainment Have Enriched the Nation and Every State, but Racial and Gender Inequality Persists*](#). Georgetown University Center on Education and the Workforce, 2024.
- Carroll, Daniel R., and Ross Cohen-Kristiansen. "[*Evaluating Homeownership as the Solution to Wealth Inequality*](#)." *Economic Commentary* (Federal Reserve Bank of Cleveland), 2021.
- Carroll, Will. [*Investing in Value: Return on Investment and Workforce Success in State Postsecondary Funding*](#). HCM Strategists, January 2025.
- Cengage Group. "[*The Missing Link: Accountability in Career Readiness \(2025 Graduate Employability Report\)*](#)." 2025.
- Center for Business and Economic Research, Gatton College of Business and Economics, University of Kentucky. [*Selected Returns on Investments in Higher Education in Kentucky*](#). Center for Business and Economic Research, Gatton College of Business and Economics, University of Kentucky, 2024.
- Center for Women's Welfare, University of Washington. "[*Self-Sufficiency Standard Calculator*](#)." n.d.
- Cheah, Ban, Martin Van Der Werf, Catherine Morris, and Jeff Strohl. [*Ranking 4,600 Colleges by ROI \(2025\)*](#). Georgetown University Center on Education and the Workforce, 2025.
- Cheng, Diane. [*Recommendations for Measuring Student Investment in College*](#). Postsecondary Value Commission, May 2021.
- Chetty, Raj, John N. Friedman, Emmanuel Saez, Nicholas Turner, and Danny Yagan. "[*Mobility Report Cards: The Role of Colleges in Intergenerational Mobility*](#)." Opportunity Insights, July 2017.

Chetty, Raj, David Grusky, Maximilian Hell, Nathaniel Hendren, Robert Manduca, and Jimmy Narang. [“The Fading American Dream: Trends in Absolute Income Mobility Since 1940.”](#) NBER Working Paper 22910. National Bureau of Economic Research, 2016.

Chetty, Raj, Matthew O. Jackson, Theresa Kuchler, Johannes Stroebe, Nathaniel Hendren, Robert B. Fluegge, Sara Gong, Federico Gonzalez, Armelle Grondin, Matthew Jacob, Drew Johnston, Martin Koenen, Eduardo Laguna-Muggenburg, Florian Mudekereza, Tom Rutter, Nicolaj Thor, Wilbur Townsend, Ruby Zhang, Mike Bailey, Pablo Barberá, Monica Bhole, and Nils Wernerfelt. [“Social Capital I: Measurement and Associations with Economic Mobility.”](#) NBER Working Paper 30313. National Bureau of Economic Research, July 2022.

Cochrane, Debbie. [Examining How Student and Parent Debt Impacts Postsecondary Value.](#) Postsecondary Value Commission, 2021.

Cohn, Jason. [How Do College Graduates’ Earnings Change over Time? Implications for Higher Education Accountability Policy.](#) Urban Institute, November 2024.

Cohn, Jason. [Student Loan Default Patterns: What Different Paths Through Default Can Tell Us about Equitably Supporting Borrowers.](#) Urban Institute, November 2022.

Coleman, James S. [“Social Capital in the Creation of Human Capital.”](#) *American Journal of Sociology* 94, no. 1 (1988): S95–120.

Coleridge Initiative. [“Multi-State Postsecondary Dashboard.”](#) n.d.

College Futures Foundation. [“Our Focus Areas.”](#) n.d.

Colorado Department of Higher Education. [Colorado Minimum Value Threshold: Work Update](#) (working draft). Colorado Department of Higher Education, 2024.

Colorado General Assembly. [House Bill 22-1349: Concerning Improving Decision-Making to Enhance Postsecondary Student Success, and, in Connection Therewith, Making an Appropriation.](#) 73rd General Assembly, Second Regular Session. Approved June 3, 2022.

Complete College America. [Better Data, Better Decisions.](#) Complete College America, 2020.

Complete College America. [Scaling Completion: 2023 Progress Report.](#) Complete College America, 2024.

Complete College America. [Using a Measurement System to Strengthen Student Success Reforms.](#) Complete College America, 2023.

Congressional Research Service. [The TRIO Programs: A Primer.](#) Updated October 21, 2020.

Cooper, Preston. [Does College Pay Off? A Comprehensive Return on Investment Analysis.](#) The Foundation for Research on Equal Opportunity, n.d.

- Cooper, Preston. [Higher Education's Return on Investment: Methodology](#). The Foundation for Research on Equal Opportunity, n.d.
- Cote, Catherine. "[4 Types of Data Analytics to Improve Decision-Making](#)." Harvard Business School Online, October 19, 2021.
- Counsel for Aid to Education. "[Performance-Based Assessments](#)." n.d.
- Cox, Taylor, and Xiqian Liu. [Credentials of Value: Methodology](#). TAIR Conference, Texas Higher Education Coordinating Board, February 27, 2025.
- Creamer, John, and Kalee Burns. "[What's the Difference Between the Supplemental and Official Poverty Measures?](#)" *Within Census Blogs*, US Census Bureau, September 6, 2022.
- Credential Engine. [Counting U.S. Postsecondary and Secondary Credentials](#). Credential Engine, 2022.
- Credential Engine. [Counting U.S. Postsecondary and Secondary Credentials: Budget Report](#). Credential Engine, 2022.
- Credential Engine. "[Making Credentials Transparent](#)." n.d.
- Credential Finder. "[Discover Credentials. Explore Opportunities](#)." n.d.
- Credlens. "[Delivering on the Promise of Education-to-Employment Opportunity by Advancing Non-Degree Credential Data](#)." n.d.
- Cummings, Kristen, Sophia Laderman, Jason Lee, David Tandberg, and Dustin Weeden. [Investigating the Impacts of State Higher Education Appropriations and Financial Aid](#). State Higher Education Executive Officers Association, May 2021.
- Dale, Stacy B., and Alan B. Krueger. "[Estimating the Effects of College Characteristics over the Career Using Administrative Earnings Data](#)." *Journal of Human Resources* 49, no. 2 (2014): 323–58.
- Delisle, Jason, and Jason Cohn. [Measuring Earnings Growth by Field of Study to Inform Higher Education Policy: New College Scorecard Data Report Earnings up to Five Years After Completion](#). Urban Institute, December 2024.
- Delisle, Jason D., and Jason Cohn. "[Tuition-to-Earnings Limits: An Alternative to the Gainful Employment Rule for Higher Education Accountability](#)." Urban Institute, November 22, 2022.
- Deming, David J. "[Four Facts about Human Capital](#)." NBER Working Paper 30149. National Bureau of Economic Research, June 2022.
- Deming, David J., and Susan M. Dynarski. "[Into College, Out of Poverty? Policies to Increase Postsecondary Attainment of the Poor](#)." NBER Working Paper 15387. National Bureau of Economic Research, October 2009.

Deming, David J., Alexis Gable, Rachel Lipson, and Arkadijs Zvagzne. [*Navigating Public Job Training*](#). Harvard Project on Workforce, 2023.

Deming, David J., and Christopher R. Walters. “[The Impact of Price Caps and Spending Cuts on U.S. Postsecondary Attainment](#).” NBER Working Paper 23736. National Bureau of Economic Research, August 2017.

Denning, Jeffrey T., Benjamin M. Marx, and Lesley J. Turner. “[ProPelled: The Effects of Grants on Graduation, Earnings, and Welfare](#).” NBER Working Paper 23860. National Bureau of Economic Research, September 2017. Revised June 2018.

Denning, Jeffrey T., and Lesley J. Turner. “[The Graduation Part II: Graduate Program Graduation Rates](#).” *Journal of Public Economics* 248 (August 2025), 105422.

Dynarski, Susan M. “[Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion](#).” *American Economic Review* 93, no. 1 (March 2003): 279–88.

Dynarski, Susan, Lindsay C. Page, and Judith Scott-Clayton. “[College Costs, Financial Aid, and Student Decisions](#).” NBER Working Paper 30275. National Bureau of Economic Research, July 2022.

Dynarski, Susan M., and Judith Scott-Clayton. [Financial Aid Policy: Lessons from Research](#). Education Policy Initiative, Gerald R. Ford School of Public Policy, University of Michigan, January 2013.

Education Commission of the States. “[Statewide Longitudinal Data Systems 2024: Establishment](#).” May 2024.

Education Design Lab. “[Learning and Employment Records \(LERs\)](#).” n.d.

Education Strategy Group. “[Bringing States Together to Identify Credentials of Value](#).” n.d.

Education Strategy Group. [Florida Credential of Value Workgroup Report](#). Education Strategy Group, March 2022.

Education Strategy Group. [The Great Value Shift: A Roadmap for Delivering Value in Postsecondary Education](#). Education Strategy Group, 2025.

Ehrenberg, Ronald G. *Tuition Rising: Why College Costs So Much*. Harvard University Press, 2000.

Engle, Jennifer. [Answering the Call: Institutions and States Lead the Way Toward Better Measures of Postsecondary Performance](#). Bill & Melinda Gates Foundation, 2016.

Equifax. “[Ignite for Graduate Outcomes: Product Sheet](#).” Equifax, n.d.

Espinosa, Lorelle L., Robert Kelchen, and Morgan Taylor. *Minority Serving Institutions as Engines of Upward Mobility*. American Council on Education Center for Policy Research and Strategy, 2018.

- Etier, Charlotte, and Jill Desjean. "[Deep Dive: Understanding Analyses of New Accountability Frameworks Under the One Big Beautiful Bill Act](#)." NASFAA, February 4, 2026.
- Families and Workers Fund. [Reimagining Job Quality Measurement](#). Families and Workers Fund, November 2022.
- Fernandez, Fernando. "[Turnout for What? Do Colleges Prepare Informed Voters?](#)" *Educational Researcher* 50, no. 9 (2021): 677–78.
- Flaherty, Colleen. "[The Effect of Employer-Provided General Training on Turnover: Examination of Tuition Reimbursement Programs](#)." Stanford Institute for Economic Policy Research Working Paper, February 2007.
- Foundation for Research on Equal Opportunity. "[Is College Worth It?](#)" n.d.
- Foundation for Research on Equal Opportunity. "[Is Grad School Worth It?](#)" n.d.
- Gallup. "[Indicators: Employee Engagement](#)." Gallup, n.d.
- Gallup. "[Lumina Foundation, Gates Foundation and Omidyar Network Tell Full Story of U.S. Job Quality](#)." n.d.
- Gallup. "[Measuring College and University Outcomes](#)." Gallup, n.d.
- Gallup. "[The Q¹²®: The World's Leading Employee Engagement Survey](#)." Gallup, n.d.
- Gallup and Lumina Foundation. [Education for What?](#) Gallup and Lumina Foundation, 2023.
- Gallup and Lumina Foundation. [The State of Higher Education 2025](#). Gallup, 2025.
- George Washington University, LAiSER. "[LAiSER](#)." n.d.
- Georgetown University. "[The Perils of the Demographic Cliff](#)." *Georgetown University Feed*, January 17, 2025.
- Giani, Matt S., Paul Attewell, and David Walling, "[The Value of an Incomplete Degree: Heterogeneity in the Labor Market Benefits of College Non-Completion](#)," *The Journal of Higher Education* 91, no. 1 (2019): 1–26.
- Glasmeier, Amy K., and Massachusetts Institute of Technology. "[Living Wage Calculator](#)." Massachusetts Institute of Technology, updated February 15, 2026.
- Griffith, Amanda L., and Kevin N. Rask. "[The Effect of Institutional Expenditures on Employment Outcomes and Earnings](#)." *Economic Inquiry* 54, no. 4 (October 2016): 1931–45.
- Groshen, Erica L., Demetra Nightingale, Andrew Reamer, Youstina Magdy, and Madison Raju. [Harnessing Employer Records for Enhanced Research, Statistics, and Evaluation](#). U.S. Chamber of Commerce Foundation, November 2022.
- Gulish, Artem, Kathryn Peltier Campbell, and Jeff Strohl. [A Framework for Assessing the Value of Postsecondary Education and Training: State Guidance](#). Georgetown University Center on Education and the Workforce, 2026.

- Gulish, Artem, Catherine Morris, Ban Cheah, and Jeff Strohl. [*Graduate Degrees: Risky and Unequal Paths to the Top*](#). Georgetown University Center on Education and the Workforce, 2024.
- Hanson, Andrew. [*What States Should Know About Education and Work—But Don't*](#). Strada, 2025.
- Hanushek, Eric A. “[Education Production Functions](#).” In *The New Palgrave Dictionary of Economics*, edited by Steven N. Durlauf and Lawrence E. Blume. Palgrave Macmillan, 2008.
- Harmon, Timothy. [*The Current State of Earnings Data: State Definitions of Earners and Private Earnings Data Sources for Institutions*](#). Postsecondary Value Commission, 2021.
- Harvard Kennedy School Malcolm Weiner Center for Social Policy and the Project on Workforce. [*The College to Jobs Map*](#). n.d.
- Heckman, James J., John Eric Humphries, and Gregory Veramendi. “[The Nonmarket Benefits of Education and Ability](#).” *Journal of Human Capital* 12, no. 1 (2018): 1–38.
- Heinrich, Carolyn J., Peter R. Mueser, Kenneth R. Troske, Kyung-Seong Jeon, and Daver C. Kahvecioglu. “[Do Public Employment and Training Programs Work?](#)” *IZA Journal of Labor Economics* 2, October 25, 2013.
- Higher Education Research Institute, University of California, Los Angeles. “[Overview of Surveys](#).” n.d.
- Hollenbeck, Kevin. “[Return on Investment in Workforce Development Programs](#).” W.E. Upjohn Institute for Employment Research Working Paper, November 8, 2012.
- Hollenbeck, Kevin, and Wei-Jang Huang. [*Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State*](#). W.E. Upjohn Institute for Employment Research, February 2013.
- ICF. [*Moving California Forward: The Economic Power of the CSU*](#). California State University Office of the President, 2025.
- IMPLAN. <https://implan.com/>.
- Indiana Department of Workforce Development. “[Explore Top Jobs Data](#).” n.d.
- Institutional Research & Academic Planning, University of California Office of the President. [*Fiat Lux: What is the Value of a UC Degree?*](#) University of California Office of the President, 2021.
- Iowa Board of Regents. “[Recent Alumni Career Outcomes: Income & Student Debt by Program](#).” n.d.
- IRS. “[Employer-Offered Educational Assistance Programs Can Help Pay for College](#).” August 7, 2024.
- Itzkowitz, Michael. [*Price-to-Earnings Premium: A New Way of Measuring Return on Investment in Higher Ed*](#). Third Way, 2020.

Janice, Amanda, and Mamie Voight. [*Toward Convergence: A Technical Guide for the Postsecondary Metrics Framework*](#). Institute for Higher Education Policy, May 2016.

Jobs for the Future. [“Job Quality Matters: For People, Businesses, and the Economy.”](#) n.d.

Jobs for the Future. [The American Job Quality Study 2025: State of the US Labor Force](#). October 16, 2025.

Jobs for the Future Labs. [Building a Skills-Based Talent Marketplace: Verifiable Credentials Wallets for Learning and Employment](#). Jobs for the Future, April 2022.

Jones, Hannah. [“Three-Quarters of Americans View Homeownership as Part of the American Dream.”](#) *Realtor.com*, January 14, 2025.

Jones, Jeffrey M. [“U.S. Public Trust in Higher Ed Rises from Recent Low.”](#) Gallup News, 2025.

Katz, Batia, William J. Congdon, and Jessica Shakesprere. [Measuring Job Quality: Current Measures, Gaps, and New Approaches](#). Urban Institute, April 2022.

Kelchen, Robert. [“Some Thoughts on Program-Level College Scorecard Data.”](#) May 21, 2019.

Kelchen, Robert, Sara Goldrick-Rab, and Braden Hosch. [“The Costs of College Attendance: Examining Variation and Consistency in Institutional Living Cost Allowances.”](#) *The Journal of Higher Education* 88, no. 6 (2017): 947–71.

Kim, ChangHwan, Christopher R. Tamborini, and Arthur Sakamoto. [“Field of Study in College and Lifetime Earnings in the United States.”](#) *Sociology of Education* 88, no. 4 (October 2015): 320–39.

Lee, Donghoon, and Wilbert van der Klaauw. [An Introduction to the New York Fed Consumer Credit Panel](#). Staff Report no. 479. Federal Reserve Bank of New York, November 2010.

Levine, Ilan, Ama Takyi-Laryea, Phillip Oliff, and Lexi West. [“Borrowers with Certain Educational Experiences Appear More Likely to Default.”](#) Pew Research Center, January 30, 2024.

Lightcast. [Skills Mismatch](#). Lightcast, n.d.

Lumina Foundation. [A Benchmark for Making College Affordable](#). Lumina Foundation, July 2017.

Lumina Foundation. [“The Case for Talent Investment.”](#) Lumina Foundation, 2020.

Lumina Foundation. [“Degree Attainment by State and Race/Ethnicity in the United States.”](#) *A Stronger Nation*, 2021–23 three-year estimates (ages 25–64, excluding short-term credentials). Lumina Foundation, n.d.

Lumina Foundation. [“Educational Attainment in the United States.”](#) *A Stronger Nation*. Lumina Foundation, 2026.

Lumina Foundation. [“Introducing the Credentials of Value Goal.”](#) *A Stronger Nation*. Lumina Foundation, 2026.

Lumina Foundation. [*States with Higher Education Attainment Goals*](#). Lumina Foundation, December 2024.

Ma, Jennifer, Matea Pender, and Xiaowen Hu. [*Trends in College Pricing and Student Aid 2025*](#). College Board, 2025.

Marken, Stephanie. [*Ensuring a More Equitable Future: Exploring the Relationship Between Wellbeing and Postsecondary Value*](#). Postsecondary Value Commission, May 2021.

Marx, Benjamin M., and Lesley J. Turner. “[Attainment Effects of Student Loans and Pell Grants](#).” *AEA Papers and Proceedings* 109 (May 2019): 223–26.

Matsudaira, Jordan. [*The Economic Returns to Postsecondary Education: Public and Private Perspectives*](#). Postsecondary Value Commission, 2021.

McLeod, Emma Nyhof, Kathryn Peltier Campbell, Zachary Mabel, and Jeff Strohl. [*Bridging the Middle Skills Gap: Connecting a Diverse Workforce to Economic Opportunity Through Certificates and Associate’s Degrees*](#). Georgetown University Center on Education and the Workforce, 2025.

Meisenbacher, Stephen, Svetlozar Nestorov, and Peter Norlander. “[Extracting ONET Features from the NLx Corpus to Build Public Use Aggregate Labor Market Data](#).” Washington Center for Equitable Growth working paper, October 1, 2025.

Mezza, Alvaro A., Daniel R. Ringo, Shane M. Sherlund, and Kamila Sommer. “[Student Loans and Homeownership](#).” *Finance and Economics Discussion Series*, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, 2016.

Miller, Ben. [*Measuring Return on Investment for Postsecondary Education: The Case for Using Earnings and Loan Repayment Metrics*](#). Postsecondary Value Commission, 2021.

Mulhern, Christine, Richard R. Spies, and D. Derek Wu. “[The Effects of Rising Student Costs in Higher Education: Evidence from Public Institutions in Virginia](#).” *Social Science Research*, March 4, 2015.

National Association of Colleges and Employers (NACE). [*Competencies for a Career-Ready Workforce*](#). NACE, 2024.

National Association of Colleges and Employers (NACE). “[First Destinations for the College Class of 2023](#).” n.d.

National Association of Colleges and Employers (NACE). “The Top Attributes New College Graduates Are Looking for in a Job.” Press release, May 21, 2025.

National Association of Student Financial Aid Administrators (NASFAA). [*Navigating Federal Guidance on the Use and Disclosure of FAFSA Data and Federal Tax Information*](#). NASFAA, December 2025.

National Center for Health Statistics. “[2025 National Health Interview Survey \(NHIS\) Questionnaire](#).” Document version: March 25, 2025.

National Opinion Research Center (NORC) at the University of Chicago. [General Social Survey \(GSS\)](#). n.d.

National Student Clearinghouse. “[National Student Clearinghouse](#).” National Student Clearinghouse, n.d.

National Student Clearinghouse. “[Postsecondary Data Partnership](#).” National Student Clearinghouse Research Center, n.d.

National Student Clearinghouse Research Center. [Completing College: National and State Reports with Six- and Eight-Year Completion Rates Dashboards](#). National Student Clearinghouse Research Center, 2023.

National Survey of Student Engagement, Indiana University. “[Civic Engagement Topical Module \(2025\)](#).” n.d.

New York Times. “[Economic Diversity and Student Outcomes at America’s Colleges and Universities: Find Your College](#).” The Upshot, 2017.

NLx Research Hub. “[NLx Research Hub](#).” n.d.

OECD. “[Population with Tertiary Education](#).” n.d.

Offenstein, Jeremy, Colleen Moore, and Nancy Shulock. [Advancing by Degrees: A Framework for Increasing College Completion](#). The Education Trust, April 2010.

Opportunity Insights. “[Social Capital Atlas](#).” n.d.

Orrell, Brent, Daniel A. Cox, and Jessie Wall. “[The Social Workplace: Social Capital, Human Dignity, and Work in America: Findings from the June 2022 American Perspectives Survey](#).” American Enterprise Institute Survey Center on American Life, October 25, 2022.

Ozcan, Serdar, and Nicholas Sullivan. “[Recent College Grads Bear the Brunt of Labor-Market Shifts](#).” *On the Economy* (blog), Federal Reserve Bank of St. Louis, 2025.

Pender, Matea, Jennifer Ma, Xiaowen Hu, and Ashley Edwards. [Education Pays 2026](#). College Board, 2026.

Pennsylvania’s State System of Higher Education. “[PASSHE is Meeting PA’s Workforce Needs](#).” n.d.

Peterson, Eliza K., Justin Vinton, and Michelle Van Noy. [A Snapshot of State Practices and Plans for Collecting Industry and Certification Data](#). Rutgers University Education and Employment Research Center, April 2024.

Pew Research Center. “[The Student Loan Default Divide: Racial Inequities Play a Role](#).” December 10, 2024; updated April 4, 2025.

Pfeiffer, Jay J. [*Student Follow-Up Using Automated Record Linkage Techniques: Lessons from Florida's Education and Training Placement Information Program \(FETPIP\)*](#). ED 371 813. Florida Department of Education, 1994.

Postsecondary Commission. [*Standards Compliance Guidance*](#). Last updated August 4, 2025.

Postsecondary Commission and Mathematica. [*Texas Statewide Study of Postsecondary Value-Added Earnings*](#). Postsecondary Commission, 2026.

Postsecondary Value Commission. [*Equitable Value: Promoting Economic Mobility and Social Justice Through Postsecondary Education*](#). Institution for Higher Education Policy and Bill & Melinda Gates Foundation, 2021.

Postsecondary Value Commission. ["Exploring Equitable Postsecondary Value."](#) n.d.

Putnam, Robert D. ["Bowling Alone: America's Declining Social Capital."](#) *Journal of Democracy* 6, no. 1 (1995): 65–78.

Reeves, Richard. ["Feeling Good or Doing Good? Emotional Social Capital Versus Relational Social Capital."](#) Brookings Institution, April, 8, 2019.

Robinson, Chazz, and Ben Cecil. ["2023 Economic Mobility Index."](#) Third Way, August 23, 2023.

Rounds, Emily. ["2023 Price-to-Earnings Premium for Four-Year Colleges."](#) Third Way, September 28, 2023.

RTI International. ["Study Shows Students with the Lowest Student Loan Debt Tend to Default More than Students Carrying More Debt."](#) October 5, 2017.

Rzepczynski, Mark, and John Kalil. ["Social Capital and the College Experience: Distinctions Across Universities Matter."](#) December 30, 2024.

Saad, Lydia. ["Perceived Importance of College Hits New Low."](#) Gallup, September 11, 2025.

Sallie Mae. ["How America Saves for College."](#) Sallie Mae and Ipsos, 2018.

Schwandt, Hannes. ["Recession Graduates: The Long-Lasting Effects of an Unlucky Draw."](#) Stanford Institute for Economic Policy Research, April 2019.

Scott-Clayton, Judith. ["The Looming Student Loan Default Crisis Is Worse Than We Thought."](#) Brookings Institution, January 11, 2018.

Scott-Clayton, Judith. ["What Accounts for Gaps in Student Loan Default, and What Happens After."](#) Brookings Institution, June 21, 2018.

- Scott-Clayton, Judith, Veronica Minaya, CJ Libassi, and Joshua Thomas. [*Who Rides Out the Storm? The Immediate Post-College Transition and Its Role in Socioeconomic Earnings Gaps*](#). Community College Research Center, Teachers College, Columbia University, October 2025.
- Short, Caroline, and Christopher Mazur. [*Housing Availability and Affordability: 2023*](#). American Community Survey Reports ACS-61. US Census Bureau, September 2025.
- SHRM. [*2025 Employee Benefits Survey*](#). SHRM, 2025.
- Spence, Michael. “[Job Market Signaling](#).” *Quarterly Journal of Economics* 87, no. 3 (August 1973): 355–74.
- Spitze, Scott, Guy Berger, Yustina Saleh, and Suzanne Towns. [*EQOS Signal of Quality: Methodology Overview*](#). Education Quality Outcomes Standards, July 2024.
- State Council of Higher Education for Virginia. *Guide to the Post-Completion Wages of Graduates*. n.d.
- State Council of Higher Education for Virginia. “[Institutional Fact Packs](#).” n.d.
- State Higher Education Executive Officers Association (SHEEO). “[Explore Survey Results: Strong Foundations Survey and Reporting](#).” n.d.
- State Higher Education Executive Officers Association (SHEEO). [*State Higher Education Finance \(SHEF\)*](#). n.d.
- Steppingblocks. “[Our Data](#).” n.d.
- Strada Education Foundation. “[Beyond Completion Challenge](#).” Strada Education Foundation, n.d.
- Strada Education Foundation. “[State Opportunity Index Appendix: Return on Investment](#).” Strada Education Foundation, October 2025.
- Strada Education Foundation. [*State Opportunity Index: Connecting Education with Opportunity*](#). Strada Education Foundation, 2025.
- Strohl, Jeff, Kathryn Peltier Campbell, and Artem Gulish. [*From Mann to Markets: Evolving Ideas about the Value of Postsecondary Education and Training to Individuals and Society*](#). Georgetown University Center on Education and the Workforce, 2026.
- Strohl, Jeff, Zachary Mabel, and Kathryn Peltier Campbell. [*The Great Misalignment: Addressing the Mismatch between the Supply of Certificates and Associate’s Degrees and the Future Demand for Workers in 565 US Labor Markets*](#). Georgetown University Center on Education and the Workforce, 2024.
- Strohl, Jeff, Catherine Morris, Artem Gulish, and Matthew Martinez. [*Rethinking Underemployment: Are College Graduates Using Their Degrees?*](#) Georgetown University Center on Education and the Workforce, 2026.
- Territorium. “[Demonstrate Higher Education Program Effectiveness](#).” n.d.

Territorium. “[Demonstrate and Measure Critical Skills](#).” n.d.

Texas Legislature. [House Bill 8, 88th Legislature](#), Regular Session. 2023.

The Institute for College Access and Success (TICAS). “[Department of Education and Negotiators Reach Consensus on Higher Ed Accountability Framework](#).” TICAS, January 14, 2026.

The Institute for College Access & Success (TICAS). [Students at Greatest Risk of Loan Default](#). TICAS, April 2018.

The Pell Institute for the Study of Opportunity in Higher Education. [Indicators of Higher Education Equity in the United States: 2024 Report](#). The Pell Institute, 2024.

Third Way. “[Higher Ed Value Metrics](#).” n.d.

Tran, Henry, and Douglas Smith. “[The Impact of Employer-Sponsored Educational Assistance Benefits on Community College Student Outcomes](#).” *Journal of Student Financial Aid* 47, no. 2 (2017): Article 4.

Trostel, Philip. [It's Not Just the Money: The Benefits of College Education to Individuals and to Society](#). Lumina Foundation, 2017.

Tufts University Tisch College. “[National Study of Learning, Voting and Engagement](#).” n.d.

United States Congress. [H.R. 1 — An Act to Provide for Reconciliation Pursuant to Title II of H. Con. Res. 14, 119th Cong.](#), became Public Law No. 119-21, July 4, 2025.

University of California, Irvine, School of Education. “[Next Generation Undergraduate Success Measurement Project](#).” n.d.

University of Michigan, Institute for Social Research. “[Panel Study of Income Dynamics \(PSID\)](#).” n.d.

University of Texas System. “[Texas Credentials for the Future](#).” n.d.

Urban Institute. “[Building America's Workforce](#).” n.d.

US Bureau of Labor Statistics. “[Consumer Expenditure Surveys](#).” n.d.

US Census Bureau. “[About Voting and Registration](#).” n.d.

US Census Bureau. “[Civic Engagement and Volunteering Supplement](#).” Press Release Number CB24TPS.112, November 19, 2024.

US Census Bureau. “[Guidance for Health Insurance Data Users](#).” n.d.

US Census Bureau. “[Longitudinal Employer-Household Dynamics \(LEHD\) PSEO Experimental Data](#).” n.d.

US Census Bureau. "[Survey of Income and Program Participation \(SIPP\)](#)." n.d.

US Centers for Disease Control. [National Health Interview Survey](#). n.d.

US Chamber of Commerce Foundation. "[Introducing the LER Hub – The Next Phase in the Development of Learning and Employment Records](#)." July 14, 2020.

US Department of Education. [2025 Title II Report: Academic Year 2023–24 Data](#). Title II, Higher Education Act. US Department of Education, 2025.

US Department of Education. "[Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Pell Grant Exclusion Relating to Other Grant Aid; and Workforce Pell Grants](#)." *Federal Register* 91, no. 96 (May 19, 2026): 29254–338.

US Department of Education. "[Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System \(STATS\) and Earnings Accountability](#)." *Federal Register* 91, no. 125 (July 1, 2026): 40136–287.

US Department of Education. "[College Scorecard: Data Documentation](#)." n.d.

US Department of Education. "[Financial Value Transparency and Gainful Employment](#)." *Federal Register* 88, no. 194 (October 10, 2023): 70004–193.

US Department of Education. "[Request for Information to Gather Technical Expertise Pertaining to Data Elements, Metrics, Data Collection, Weighting, Scoring, and Presentation of a Postsecondary Institution Ratings System](#)." *Federal Register* 78, no. 242. (December 17, 2013): 76289–91.

US Department of Education. "[Student Assistance General Provisions](#)." *Federal Register* 60, no. 231 (December 1, 1995): 61776.

US Department of Education. "[Technical Documentation: College Scorecard Institution-Level Data](#)." September 2025.

US Department of Education. "[U.S. Department of Education Ends Funding to Racially Discriminatory Discretionary Grant Programs at Minority-Serving Institutions](#)." Press release, September 10, 2025.

US Department of Education, Federal Student Aid. "[Guidance on the Use of Federal Tax Information \(FTI\), Free Application for Federal Student Aid \(FAFSA®\) Data, and Non-FAFSA Data](#)." Dear Colleague Letter DCL ID GEN-25-08, September 30, 2025.

US Department of Education, Federal Student Aid. "[Regulatory Requirements for Financial Value Transparency and Gainful Employment \(Updated Sept. 16, 2024\)](#)." Dear Colleague Letter DCLID GEN2404, March 29, 2024.

US Department of Education, Federal Student Aid. "[Student Loan Repayment](#)." n.d.

US Department of Education, Federal Student Aid Data Center. "[Federal Student Aid Data Center](#)." n.d.

US Department of Education, National Center for Education Statistics (NCES). "[CIP SOC Crosswalk](#)." n.d.

US Department of Education, National Center for Education Statistics (NCES). "[IPEDS Survey Components](#)." n.d.

US Department of Education, National Center for Education Statistics (NCES). [Table 2: Number of Full-Time, First-Time Degree/Certificate-Seeking Undergraduate Students in the Adjusted Cohort, Number Receiving an Award, and Graduation Rate within 150 Percent of Normal Program Completion Time at Title IV Institutions, by Control of Institution, Level of Institution, and Type of Aid Received: United States, Cohort Years 2018 and 2021](#). In *IPEDS Data Explorer*. US Department of Education, 2024.

US Department of Education, National Center for Education Statistics (NCES). [Table 306.10: Total Fall Enrollment in Degree-Granting Postsecondary Institutions, by Level of Enrollment, Sex, Attendance Status, and Race/Ethnicity or Nonresident Status of Student: Selected Years, 1976 through 2023](#). In *Digest of Education Statistics*. US Department of Education, 2024.

US Department of Education, National Center for Education Statistics (NCES). [Table 326.10: Graduation Rate from First Institution Attended for First-Time, Full-Time Bachelor's Degree-Seeking Students at 4-Year Postsecondary Institutions, by Race/Ethnicity, Time to Completion, Sex, Control of Institution, and Percentage of Applications Accepted: Selected Cohort Entry Years, 1996 through 2017](#). In *Digest of Education Statistics 2024*. US Department of Education, 2024.

US Department of Education, National Center for Education Statistics (NCES). [Table 330.10: Average Undergraduate Tuition, Fees, Room, and Board Rates Charged for Full-Time Students in Degree-Granting Postsecondary Institutions, by Level and Control of Institution: Selected Academic Years, 1963–64 Through 2022–23](#). In *Digest of Education Statistics 2023*. US Department of Education, 2023.

US Department of Education, National Center for Education Statistics (NCES). [Table 331.30: Average Amount of Grant and Scholarship Aid and Average Net Price of Attendance for First-Time, Full-Time Degree/Certificate-Seeking Undergraduate Students Awarded Title IV Aid in Degree-Granting Postsecondary Institutions, by Control and Level of Institution and Income Level: Selected Academic Years, 2009–10 through 2021–22](#). In *Digest of Education Statistics 2023*. US Department of Education, 2023.

US Department of Education, National Center for Education Statistics (NCES). [Table 331.95: Percentage of Undergraduate Degree/Certificate Completers Who Ever Received Loans and Average Cumulative Amount Borrowed, by Degree Level, Selected Student Characteristics, and Institution Control: Selected Academic Years, 1999–2000 through 2019–20](#). In *Digest of Education Statistics*. US Department of Education, 2023.

US Department of Education, National Center for Education Statistics (NCES). [Table 332.45: Percentage of Graduate Degree Completers with Student Loan Debt and Average Cumulative Amount Owed, by Level of Education Funded and Graduate Degree Type, Institution Control, and Degree Program: Selected Academic Years, 1999–2000 through 2019–20](#) [Corrected]. In *Digest of Education Statistics*. US Department of Education, 2023.

US Department of Education, [National Postsecondary Student Aid Study \(NPSAS\)](#), 2020 (Undergraduate and Graduate).

US Department of Education, Office of Career, Technical, and Adult Education. “[Indicators of Performance](#).” n.d.

US Department of Education, Office of Career, Technical, and Adult Education. “[Perkins Collaborative Resource Network Data Explorer](#).” n.d.

US Department of Education, Office of Career, Technical, and Adult Education. “[Perkins State Formula Grants: State Allocations](#).” n.d.

US Department of Education, Office of Career, Technical, and Adult Education. “[State Plans](#).” n.d.

US Department of Education, Office of Postsecondary Education. [Financial Responsibility, Administrative Capability, Certification Procedures, Ability to Benefit \(ATB\)](#). July 1, 2024.

US Department of Education, Rehabilitation Services Administration. “[Vocational Rehabilitation State Grants: Awards](#).” n.d.

US Department of Education, Rehabilitation Services Administration. “[WIOA Annual Reports](#).” n.d.

US Department of Labor. “[Registered Apprenticeship Grants Performance Dashboard](#).” n.d.

US Department of Labor, Employment and Training Administration. “[Federal Employment Data Exchange System \(FEDES\)](#).” n.d.

US Department of Labor, Employment and Training Administration. “[State Performance](#).” n.d.

US Department of Labor, Employment and Training Administration. “[State Wage Interchange System \(SWIS\)](#).” n.d.

US Department of Labor, Employment and Training Administration. [Training and Employment Guidance Letter No. 10-25](#), 2026.

US Department of Labor, Employment and Training Administration. “[Training Provider Results](#).” n.d.

US Department of Labor, Employment and Training Administration. “[WIOA Participant Individual Record Layout \(PIRL\)](#).” n.d.

US Department of Labor, Employment and Training Administration. “[WIOA Performance Data](#).” n.d.

US Department of Labor, Employment and Training Administration. "[WIOA Performance Data Archive](#)." n.d.

US Department of Labor, Employment and Training Administration. "[WIOA Performance Indicators and Measures](#)." n.d.

US Department of Labor, Employment and Training Administration. "[WIOA Reporting Requirements](#)." n.d.

US Executive Office of the President. "[Executive Order on Improving Free Inquiry, Transparency, and Accountability at Colleges and Universities](#)." March 21, 2019.

Vaughan, Jay, and Vanessa Agudelo. "[Big Beautiful Bill—Earnings Premium for Nonprofit and Public Universities](#)." *CooleyED*, July 16, 2025.

Velasco, Tatiana, John Fink, Mariel Bedoya-Guevara, Davis Jenkins, and Tania LaViolet. [Tracking Transfer: Community College and Four-Year Institutional Effectiveness in Broadening Bachelor's Degree Attainment](#). Community College Research Center, February 2024.

Ward, James Dean, Benjamin Weintraut, and Elizabeth Davidson Pisacreta. [It's Complicated: The Relationship between Postsecondary Attainment and State Finances](#). Ithaka S+R, January 19, 2021.

Webber, Douglas A., and Ronald G. Ehrenberg. "[Do Expenditures Other Than Instructional Expenditures Affect Graduation and Persistence Rates in American Higher Education?](#)" *Economics of Education Review* 29, no. 6 (December 2010): 947–58.

Weiss, Madison. "[The Tortured Path of the Gainful Employment Rule](#)." *Center for American Progress*, 2023.

Welbeck, Rashida, John Diamond, Alexander Mayer, Lashawn Richburg-Hayes, Melvin Gutierrez, and Jessica Gingrich. [Piecing Together the College Affordability Puzzle: Student Characteristics and Patterns of \(Un\)Affordability](#). MDRC and Lumina Foundation, February 2014.

Whistle, Wesley. "[Workforce Pell Negotiated Rulemaking Recap](#)." *Workforce Pell Watch* (blog), December 16, 2025.

Whistle, Wesley. "[Workforce Pell: What You Need to Know](#)." *New America*, October 22, 2025.

The White House, Office of the Press Secretary. [Fact Sheet: The President's Plan to Make College More Affordable: A Better Bargain for the Middle Class](#). The White House, 2013.

WorkforceGPS. "[LMI Central](#)." n.d.

Zhang, Guangli, Jason Jabbari, Mathieu Despard, Xueying Mei, Yung Chun, and Stephen Roll. "[College Is Still Worth It, Even with Student Debt, but We Can Do Better](#)." *Brookings Institution*, November 3, 2025.

APPENDIX A

Summary of Metrics in the Postsecondary Value Model

This appendix summarizes the metrics in the Postsecondary Value Model. States and institutions should use their own individual-level data if available where relevant for more accurate or robust metrics. These metrics should also be disaggregated by success (completion or upward transfer) status as well as key student and institutional characteristics relevant to the context and use case.

Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Investment				
Cumulative net costs to students	The total amount that former students paid after subtracting all sources of grant aid (institutional, state, federal, private), multiplied by their enrolled time to credential or exit if only annual totals are available. Estimated interest prorated for the percentage of students who borrow should be added to the total	Determine whether to include living or opportunity costs (forgone wages) in addition to direct costs (tuition, fees, books, equipment and supplies) Do not exclude full-pay students from the calculation If only annual costs and aid are available, use or estimate time to credential or exit to calculate cumulative total For transfer and graduate students, consider measuring net costs accumulated across all programs/institutions attended	Annual net direct and living costs by institution: IPEDS Student Charges and Student Financial Aid Surveys (direct costs only for graduate students) Cumulative net direct and living costs by program: STATS (forthcoming) Cumulative net direct and living costs by credential level: NPSAS Opportunity costs: ACS Time to credential: IPEDS, BPS (undergraduates only), B&B (graduate students), NSC, STATS (forthcoming)	<i>Recommendations for Measuring Student Investment in College</i> <i>Price-to-Earnings Premium: A New Way of Measuring Return on Investment in Higher Ed</i> <i>Higher Education's Return on Investment: Methodology</i>
Cumulative student debt	The total original debt amount incurred by former students from all sources (institutional, state, federal, private) plus accumulated or estimated interest over the life of the loans	If actual interest rate and repayment period information is not available, use standardized rates and repayment periods by credential level (e.g., 10, 15, 20 years) For transfer and graduate students, consider measuring debt across all programs/institutions attended	Cumulative federal debt by institution (undergraduates only) and program (completers only): College Scorecard Cumulative debt from most sources by program: STATS (forthcoming) Cumulative debt from all sources by credential level: NPSAS Cumulative debt: Credit bureau data (not public)	Financial Value Transparency and Gainful Employment Regulations "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell: Student Tuition and Transparency System (STATS) and Earnings Accountability"

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Institutional expenditures	The amount that institutions spend total or per full-time equivalent (FTE) student on at least instruction, student services, and scholarships and fellowships	Determine whether to calculate education share of administrative and operating expenses per the Delta Cost Project Consider differences in reporting categories between public, private, and for-profit institutions and differences in definitions over time in IPEDS Cannot disaggregate expenditures in IPEDS by undergraduate and graduate education or by program level	IPEDS Finance Survey	“The Effect of Institutional Expenditures on Employment Outcomes and Earnings” “Do Expenditures Other Than Instructional Expenditures Affect Graduation and Persistence Rates in American Higher Education?”
State expenditures	The amount that states spend total or per FTE student on state and local appropriations to public postsecondary institutions and state public financial aid programs as well as on private institutions and/or students at those institutions if relevant and available	Consider whether to include state expenditures on research for graduate education Cannot disaggregate expenditures in IPEDS by undergraduate and graduate education or by program level	State expenditures at state and sector level: SHEEO SHEF report State expenditures at institutional level: IPEDS Finance and Student Financial Aid Surveys	<i>Investigating the Impacts of State Higher Education Appropriations and Financial Aid</i> <i>The Impact of Price Caps and Spending Cuts on U.S. Postsecondary Attainment</i>
Federal expenditures	The amount that the federal government spends total or per FTE student on postsecondary education, including student financial aid (e.g., Pell grants, work-study, loans), institutional appropriations and competitive grants (e.g., Title III, V), institutional research funding and grants (depending on use case), and student tax incentives (e.g., tax credits, college savings plans) The amount the federal government spends total or per FTE participant on workforce training programs (e.g., ED, DOL, military)	The budgets for these programs are often run by different federal agencies and subagencies, which can make it difficult to calculate totals	Federal expenditures at the postsecondary institutional level: IPEDS Finance and Student Financial Aid Surveys Expenditures on federal aid total and at the postsecondary institutional level: ED Federal Student Aid Data Center Federal expenditures for workforce training programs in ED (e.g., Perkins, Vocational Rehabilitation), DOL (e.g., WIOA, apprenticeships), military, IRS, and OMB budget documents (see <i>Counting U.S. Postsecondary and Secondary Credentials: Budget Report</i>)	<i>Trends in College Pricing and Student Aid</i> <i>Counting U.S. Postsecondary and Secondary Credentials: Budget Report</i>
Private subsidies	The amount that employers and other non-governmental entities spend total or per employee on training and professional development, tuition and loan repayment assistance, and training wages	This information is not routinely collected and reported publicly	Credential Engine and the Society for Human Resource Management periodically conduct studies and surveys National-level survey estimates by credential level: SIPP	<i>Counting U.S. Postsecondary and Secondary Credentials: Budget Report</i> <i>Employee Benefits Survey</i>

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Education				
Access ratio	The percentage of underserved students enrolled in an institution or program divided by their percentage in the locality or state in which the institution or program operates	Consider whether the institution or program should be compared to local, state, multistate, or national demographics based on its service area and mission Consider the appropriate age range for the local or state comparison group based on mission, service area, and purpose	Access ratio: Carnegie Student Access and Earnings Classification (undergraduates only) Student characteristics by institution: IPEDS Enrollment and Student Financial Aid Surveys, NSC (not publicly available) Participant characteristics by program: WIOA, Perkins reporting at DOL and ED Population characteristics by geography: ACS	<i>Opportunity Colleges and Universities by State</i> <i>Toward Convergence: A Technical Guide for the Postsecondary Metrics Framework</i>
Success rate (upward transfer + completion)	The percentage of students who complete their credential or transfer to a longer credential program (upward transfer) within 100 to 200 percent time in postsecondary institutions The percentage of participants who complete workforce training programs and/or the percentage of participants who complete a postsecondary credential during or within one year of program exit	Include a complete cohort of full-time, part-time, first-time, and transfer students over a 12-month period Measure retention, persistence, completion, transfer, and withdrawal annually through the reporting period Measure for graduate as well as undergraduate students and at the program level where feasible	Undergraduate success rates at the institutional level: IPEDS Outcome Measures Survey Undergraduate and graduate success rates at the institutional and program levels: NSC (not publicly available) Undergraduate and graduate success rates at the institutional and program levels for Title IV recipients: NSLDS (not fully publicly available) Workforce training completion and credential rates: WIOA and Perkins reporting at DOL and ED	<i>Toward Convergence: A Technical Guide for the Postsecondary Metrics Framework</i> <i>Tracking Transfer: Community College and Four-Year Institutional Effectiveness in Broadening Bachelor's Degree Attainment</i> <i>Graduate Degrees: Risky and Unequal Paths to the Top</i>
Graduate education rates	The percentage of undergraduate students from a program or institution that enroll in and complete graduate education within 1, 5, and 10 years after graduation	This information is not routinely reported publicly	ED (using NSLDS) and NSC could calculate this information by institution and program; ED could publish this information through the College Scorecard National-level survey estimates: BPS and B&B studies	<i>Graduate Degrees: Risky and Unequal Paths to the Top</i> "The Graduation Part II: Graduate Program Graduation Rates"

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Skills and competencies	The percentage of current or former students who demonstrate general and specific skills and competencies on assessments The percentage of program completers in a given year who obtain the relevant certificate or licensure within the required timeframe for their field	This information is not routinely collected and reported publicly	Assessments of general skills: Valid Assessment of Learning in Undergraduate Education Rubrics, Collegiate Learning Assessment, E-Proficiency Profile and HEIghten Outcomes Assessment, WorkKeys Assessments and/or pass rates for certifications or licensures: Some program accreditors and state boards WIOA measurable skill gains on examinations National level survey estimates: SIPP, CPS, NTEWS	<i>Competencies for a Career-Ready Workforce</i> <i>Workplace Basics: The Competencies Employers Want</i> “Next Generation Undergraduate Success Measurement”
Attainment rate	The percentage of working-age adults in the labor force who are not currently enrolled with post-high school credentials	Most current public sources do not readily allow reporting of certificates, certifications, and licensures, requiring estimation	Attainment rates by nation and state: American Community Survey (ACS)	Lumina Foundation’s <i>A Stronger Nation</i> (includes short-term credential estimates)
Employment				
Job placement rate	The percentage of former students who are employed within a reasonable timeframe after exit	Measure for all former students as well as separately for completers and noncompleters Determine the appropriate timeframe (usually six months to one year) Exclude students enrolled in further education Determine whether to include part-time employment Determine whether possible to measure in-field employment Consider whether to focus on employment in high-demand fields	Job placement for workforce training programs: WIOA and Perkins performance reporting data, TrainingProviderResults.gov Job placement for Workforce Pell programs: ED (forthcoming) Employment rate for Title IV institutions and programs: College Scorecard Other sources (not available to the public): state Unemployment Insurance data (UI), SWIS, Census, IRS	<i>Investing in Value: Return on Investment and Workforce Success in State Postsecondary Funding</i> <i>What States Should Know About Education and Work—But Don’t</i>

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Job benefits	The percentage of former students or workers by credential level who have access to health, disability, and life insurance, retirement plans, and paid leave policies through their employers	This information is not routinely collected and reported publicly by institution or program Available data come from alumni surveys, national surveys, or social job profiles	National-level data by credential level: National Compensation Survey (NCS) National- and state-level data by credential level: CPS Annual Social and Economic Supplement Provider-level data for non-degree credentials: BGI, CVI Private data: SHRM, Lightcast, LinkedIn, Steppingblocks (not publicly available)	<i>Reimagining Job Quality Measurement</i> <i>Measuring Job Quality: Current Measures, Gaps, and New Approaches</i> “The Credential Value Index”
Job advancement	The percentage of former students or workers by credential level who have received educational benefits, professional development and training, and/or promotion through their employers	This information is not routinely collected and reported publicly by institution or program Available data come from alumni surveys, national surveys, or social job profiles	National-level data on employer-provided training by credential level: Survey of Income and Program Participation (SIPP) National- and state-level data on occupational change by credential level: CPS ASEC Provider-level data on promotions for non-degree credentials: Burning Glass Institute's Credential Value Index Private data: SHRM, Lightcast, LinkedIn, Steppingblocks (not publicly available)	<i>The American Job Quality Study</i> <i>EQOS Signal of Quality</i> <i>Employee Benefits Survey</i>
Job engagement	The percentage of former students or workers by credential level who experience involvement, enthusiasm, or a sense of purpose in their work	This information is not routinely collected and reported publicly by institution or program	Gallup's Alumni Survey includes questions about employee engagement and purpose; institutions and programs can administer this survey to their former students	<i>Ensuring a More Equitable Future: Exploring the Relationship Between Wellbeing and Postsecondary Value</i>
Workforce alignment	The percentage of postsecondary and workforce training credentials conferred that align with employer need in a locality, state, or nationally	There is not a 1-to-1 match between program of study and occupation or industry Many states do not yet collect occupation data on their wage records	Demand projections: CEW, BLS, state LMI data, real-time job postings (e.g., Lightcast, NLx) Supply: IPEDS Completions survey, WIOA and Perkins reporting, ACS, social job profiles (e.g., LinkedIn) Connecting supply and demand: CIP-SOC Crosswalk WIOA and Perkins state plans	<i>After Everything: Projections of Jobs, Education, and Training Requirements through 2031</i> <i>Bridging the Middle Skills Gap: Connecting a Diverse Workforce to Economic Opportunity Through Certificates and Associate's Degrees</i> Labor Market Information (LMI) Central College-to-Jobs Map

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Earnings				
Return on investment	Cumulative median earnings for former students minus cumulative median comparison earnings minus cumulative average net costs over a specified time period after entry or exit	Determine whether to measure annually or cumulatively	Direct costs, living costs, and grant aid: IPEDS Student Charges and Student Financial Aid Surveys (direct costs only for graduate students), STATS (forthcoming), NPSAS (national level by credential level)	<i>Equitable Value: Promoting Economic Mobility and Social Justice Through Postsecondary Education</i>
	OR	Measure for all former students and separately for completers and noncompleters		<i>Price-to-Earnings Premium: A New Way of Measuring Return on Investment in Higher Ed</i>
	Annual median earnings for former students minus annual median comparison earnings minus amortized cumulative average net costs in a given year after entry or exit	Determine whether to measure at the institutional or program level or both	Comparison earnings and opportunity costs: American Community Survey	<i>Higher Education's Return on Investment: Methodology</i>
		Determine the relevant time period, which may be adjusted by credential level	Time to credential: NSC reports, BPS (undergraduates only), B&B, STATS (forthcoming)	<i>A Framework for Assessing the Value of Postsecondary Education and Training</i>
	Can also calculate as percentage of former students experiencing ROI	Determine what types of net costs after grant aid to include: direct, living, and/or opportunity costs	Former student earnings: College Scorecard, WIOA (limited), PSEO	
		Do not exclude full-pay students from cost calculations	Other earnings sources (not available to the public): UI, SWIS, Census, IRS	
Earnings growth		Determine how to calculate comparison earnings, which may be adjusted by credential level		
		Determine how to measure earnings for former students, excluding currently enrolled, but including those in the labor force even if unemployed if possible		
Earnings growth	The change in earnings for former students between specified time periods after exit	Measure for all former students and separately for completers and noncompleters	Earnings growth at the program or institutional level: College Scorecard (e.g., 1 and 5 years after completion or 6, 8, and 10 years after entry), PSEO	<i>Measuring Earnings Growth by Field of Study to Inform Higher Education Policy</i>
	Can also calculate as percentage of former students experiencing earnings growth	Determine whether to measure near-term pre-post earnings growth	Earnings growth at the national or state level by credential level: ACS	<i>Guide to the Post-Completion Wages of Graduates</i>
		Determine whether to measure longer-term earnings growth (e.g., between 1 and 5 years after exit and/or 5 and 10 years after exit)	Other earnings sources not available to the public: UI, SWIS, Census, IRS	<i>How Do College Graduates' Earnings Change over Time?</i>

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Earnings sufficiency	Median earnings for former students minus basic living costs or median high school graduate earnings in their state or locality at a specified timeframe after exit Can also calculate as percentage of former students meeting earnings sufficiency threshold	Measure for all former students and separately for completers and noncompleters Determine which measure of basic living costs to use (e.g., living wage, federal poverty level, high school graduate earnings)	Percentage of completers earning above 150 percent of the poverty level: College Scorecard Percentage of former students (undergraduates) or completers earning more than high school graduates: College Scorecard Percentage of completers earning more than high school graduates or bachelor's degree recipients: OBBBA Earnings: College Scorecard, PSEO, WIOA reporting Basic living costs: official and supplemental federal poverty measures, living wage calculators Other earnings sources (not available to the public): UI, SWIS, Census, IRS	"What's the Difference Between the Supplemental and Official Poverty Measures?" Living Wage Calculator Self-Sufficiency Standard Calculator
Earnings premium	Median earnings for former students minus median earnings for their program of study and/or credential level in their state or nationally at a specified timeframe after exit Can also calculate as percentage of former students reaching their full earnings premium	Measure for all former students and separately for completers and noncompleters Typically measured based on program of study at time of completion or exit Determine whether it is possible to measure by occupation or industry with available data	Program-level earnings for completers: College Scorecard, PSEO, WIOA Credential-level earnings nationally or by state: American Community Survey Other earnings sources (not available to the public): UI, SWIS, Census, IRS	<i>Buyer Beware: First-Year Earnings and Debt for 37,000 College Majors at 4,400 Institutions</i> <i>Equitable Value: Promoting Economic Mobility and Social Justice Through Postsecondary Education</i>
Economic mobility rate	The percentage of low-income former students with earnings in the fourth income quintile or above at a specified timeframe after exit multiplied by the percentage of former students who were from low-income backgrounds while enrolled in their cohort	Measure for all former students and separately for completers and noncompleters Determine the timeframe for measurement (e.g., 10–30 years after exit or completion)	College Scorecard and PSEO data can be used to determine whether students are meeting this threshold at the median but not the percentage of students meeting this threshold, so it is not possible to fully calculate the mobility rate with publicly available data Alternate approaches use indices of related measures to approximate economic mobility (e.g., Value Commission, SEAC, Third Way) Other earnings sources (not available to the public): UI, SWIS, Census, IRS	"Mobility Report Cards: The Role of Colleges in Intergenerational Mobility" Carnegie Student Access and Earnings Classification Economic Mobility Index <i>Equitable Value: Promoting Economic Mobility and Social Justice Through Postsecondary Education</i>

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Wealth				
Student loan repayment status	The percentage of former students who are in good standing on their loans from all sources (federal, private, institutional, state) within a specific timeframe after exit	Measure for all former students and separately for completers and noncompleters Students in good standing have paid off their loans, are making progress on their balances, have an in-school or military deferment, or their loans have been discharged Students who are delinquent, in forbearance, in default, or are not making progress against their balances are not considered to be in good standing Determine whether to include loan debt from all previous institutions and programs if available Determine whether it is possible to include loans from all sources Determine timeframe (e.g., three years)	Program- and institution-level repayment status after exit: College Scorecard (Program-level only available for undergraduate completers)	<i>Measuring Return on Investment for Postsecondary Education: The Case for Using Earnings and Loan Repayment Metrics</i> <i>Ensuring a More Equitable Future: Exploring and Measuring the Relationship Between Family Wealth, Education Debt, and Wealth Accumulation</i> “What Accounts for Gaps in Student Loan Default, and What Happens After”
Savings/retirement	The amount of funds that former students have available in personal savings (standard, CD, money market) and retirement savings accounts at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	There is not yet consensus on when to measure savings nor how since there are not readily available data sources to do so, especially at the program or institution level Savings is also often measured at the household level in national surveys, though some surveys do include data on individuals Even surveys with some individual-level responses are structured as household- or family-level surveys, so care is needed to use and interpret individual-level responses	National-level survey data by credential level: SCF, CES, SIPP, PSID State-level survey data by credential level: SIPP, CES Individual-level responses in household- or family-level surveys: SCF, SIPP, PSID	“Retirement Accounts by Education of Reference Person”

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Homeownership	The percentage of former students who own a home at a specified timeframe after exit Can also measure median home value Can also be measured for workers by credential level depending on data availability	There is not yet consensus on when to measure homeownership nor how since there are not readily available data sources to do so, especially at the program or institution level Homeownership is also often measured at the household level in national surveys, though some surveys do include data on individuals Even surveys with some individual-level responses are structured as household- or family-level surveys, so care is needed to use and interpret individual-level responses	National-level survey data by credential level: SCF, CES, SIPP, PSID State-level survey data by credential level: SIPP, CES Individual-level responses in household- or family-level surveys: SCF, SIPP, PSID Individual-level data for matching: Consumer credit panels can be matched with individual-level records at the state, institution, or program level to measure homeownership	“Three-Quarters of Americans View Homeownership as Part of the American Dream” “Evaluating Homeownership as the Solution to Wealth Inequality”
Net worth	The total value of assets minus total value of liabilities or debts for former students at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	There is not yet consensus on when to measure net worth nor how since there are not readily available data sources to do so, especially at the program or institution level Net worth is also often measured at the household level in national surveys, though some surveys do include data on individuals Even surveys with some individual-level responses are structured as household- or family-level surveys, so care is needed to use and interpret individual-level responses	National-level survey data by credential level: SCF, CES, SIPP, PSID State-level survey data by credential level: SIPP, CES Individual-level responses in household- or family-level surveys: SCF, SIPP, PSID	<i>Changes in U.S. Family Finances from 2019 to 2022</i> <i>Ensuring a More Equitable Future: Exploring and Measuring the Relationship Between Family Wealth, Education Debt, and Wealth Accumulation</i>
Public economic benefits	The total public benefits minus the total public cost of postsecondary education and training programs over a specified timeframe	Public benefits can include increases in tax revenue, consumption, and productivity, as well as decreases in spending on public assistance, health, and criminal justice Public costs can include institutional, state, and federal spending on postsecondary and workforce training programs including infrastructure Determine the timeframe for measurement (e.g., 10–40-year horizon)	Public spending on postsecondary institutions and workforce training programs: IPEDS, SHEEO SHEF, federal budgets Public benefits by credential level: ACS, CPS ASEC, SIPP as well as state sources	<i>The Economic Returns to Postsecondary Education: Public and Private Perspectives</i> <i>The Monetary Value of Economic and Racial Justice in Postsecondary Education</i> <i>A Framework for Assessing the Value of Postsecondary Education and Training</i>

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Metric	Key definitions	Measurement considerations	Major data sources	Key citations
Well-being				
Quality of life	The percentage of former students who rate their current and anticipated quality of life as high at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	Measure for all former students and separately for completers and noncompleters Determine timeframe for measurement (e.g., 1, 5, and/or 10 years after exit)	There is not a publicly available source for this information but institutions and programs can administer surveys such as Gallup's Alumni Survey to measure quality of life after exit	<i>Ensuring a More Equitable Future: Exploring the Relationship Between Wellbeing and Postsecondary Value</i> <i>Education for What?</i>
Physical/mental health	The percentage of former students who rate their health status as high at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	Measure for all former students and separately for completers and noncompleters Determine timeframe for measurement (e.g., 1, 5, and/or 10 years after exit)	Institution or program level: Gallup Alumni Survey National, state, and local survey data by credential level: National Health Interview Survey, ASEC (not local)	<i>It's Not Just the Money: The Benefits of College Education to Individuals and to Society</i> <i>Education Pays</i>
Social capital	The percentage of former students experiencing high levels of economic connectedness at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	Measure for all former students and separately for completers and noncompleters Determine timeframe for measurement (e.g., 1, 5, and/or 10 years after exit) There are several measures of social capital but economic connectedness across socioeconomic status has been shown to increase mobility	Institution and program level: Gallup's Alumni Survey or Opportunity Insights' Social Capital Atlas National-level survey data by credential level: General Social Survey	"Social Capital and the College Experience" "The Social Workplace: Social Capital, Human Dignity, and Work in America"
Charitable activities	The percentage of former students who donate money or time as a volunteer at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	Measure for all former students and separately for completers and noncompleters Determine timeframe for measurement (e.g., 1, 5, and/or 10 years after exit)	Institutional and program level: Gallup Alumni Survey National and state-level survey data by credential level: CPS Civic Engagement and Volunteering Supplement	<i>Education for What?</i> <i>Education Pays</i>
Civic engagement	The percentage of former students who vote at a specified timeframe after exit Can also be measured for workers by credential level depending on data availability	Measure for all former students and separately for completers and noncompleters Determine timeframe for measurement (e.g., 1, 5, and/or 10 years after exit)	Institutional or program-level data for currently enrolled students: HERI or NSSE surveys National and state-level survey data by credential level: CPS Voting and Registration Supplement	"Turnout for What? Do Colleges Prepare Informed Voters?" <i>The Role of Education in Taming Authoritarian Attitudes</i>

APPENDIX B

Glossary of Abbreviations

AAC&U - American Association of Colleges and Universities

ACS - American Community Survey

ASEC - Annual Social and Economic Supplement

B&B - Baccalaureate and Beyond

BLS - US Bureau of Labor Statistics

CE - Consumer Expenditure Survey

CEV - Civic Engagement and Volunteering

CEW - Georgetown University Center on Education and the Workforce

CIP - Classification of Instructional Programs

CIP-SOC - Classification of Instructional Programs – Standard Occupational Classification

CPS - Current Population Survey

CSU - California State University

CVI - Credential Value Index

DOL - US Department of Labor

ED - US Department of Education

EQOS - Education Quality Outcome Standards

ETPL - Eligible Training Provider Lists

FEDES - Federal Employment Data Exchange System

FETPIP - Florida's Education and Training Placement Information Program

FREOPP - Foundation for Research on Equal Opportunity

FSA - Federal Student Aid

FTE - Full-Time Equivalent

FVT - Financial Value Transparency

GDP - Gross Domestic Product

IHEP - Institute for Higher Education Policy

IPEDS - Integrated Postsecondary Education Data System

IPEDS GRS - IPEDS Graduation Rate Surveys

IPEDS OM - IPEDS Outcome Measures

IRS - Internal Revenue Service

LMI - Labor-Market Information

NHIS - National Health Interview Survey

NLx - National Labor Exchange

NORC - National Opinion Research Center

NPSAS - National Postsecondary Student Aid Study

NSC - National Student Clearinghouse

NSLDS - National Student Loan Data System

NSLVE - National Study of Learning, Voting, and Engagement

NTEWS - National Training, Education, and Workforce Survey

OBBBA - One Big Beautiful Bill Act

OECD - Organisation for Economic Co-operation and Development

OI - Opportunity Insights

OMB - Office of Management and Budget

PSEO - Postsecondary Employment Outcomes

PSID - Panel Study of Income Dynamics

ROI - Return on Investment

SCF - Survey of Consumer Finances

SCHEV - State Council of Higher Education for Virginia

SEAC - Student Earnings and Access Classification

SHEEO - State Higher Education Executive Officers Association

SHEF - State Higher Education Finance report

SHRM - Society for Human Resource Management

SIPP - Survey of Income and Program Participation

SLDS - Statewide Longitudinal Data System

STATS - Student Tuition and Transparency System

SWIS - State Wage Interchange System

UC - University of California

UI - Unemployment Insurance

VALUE - Valid Assessment of Learning in Undergraduate Education

WIOA - Workforce Innovation and Opportunity Act

WRIS - Wage Record Interchange System

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*Measuring Postsecondary Value: A Model for Applying
Research to Policy and Practice* can be accessed online
at cew.georgetown.edu/postsecondary-value-series.



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