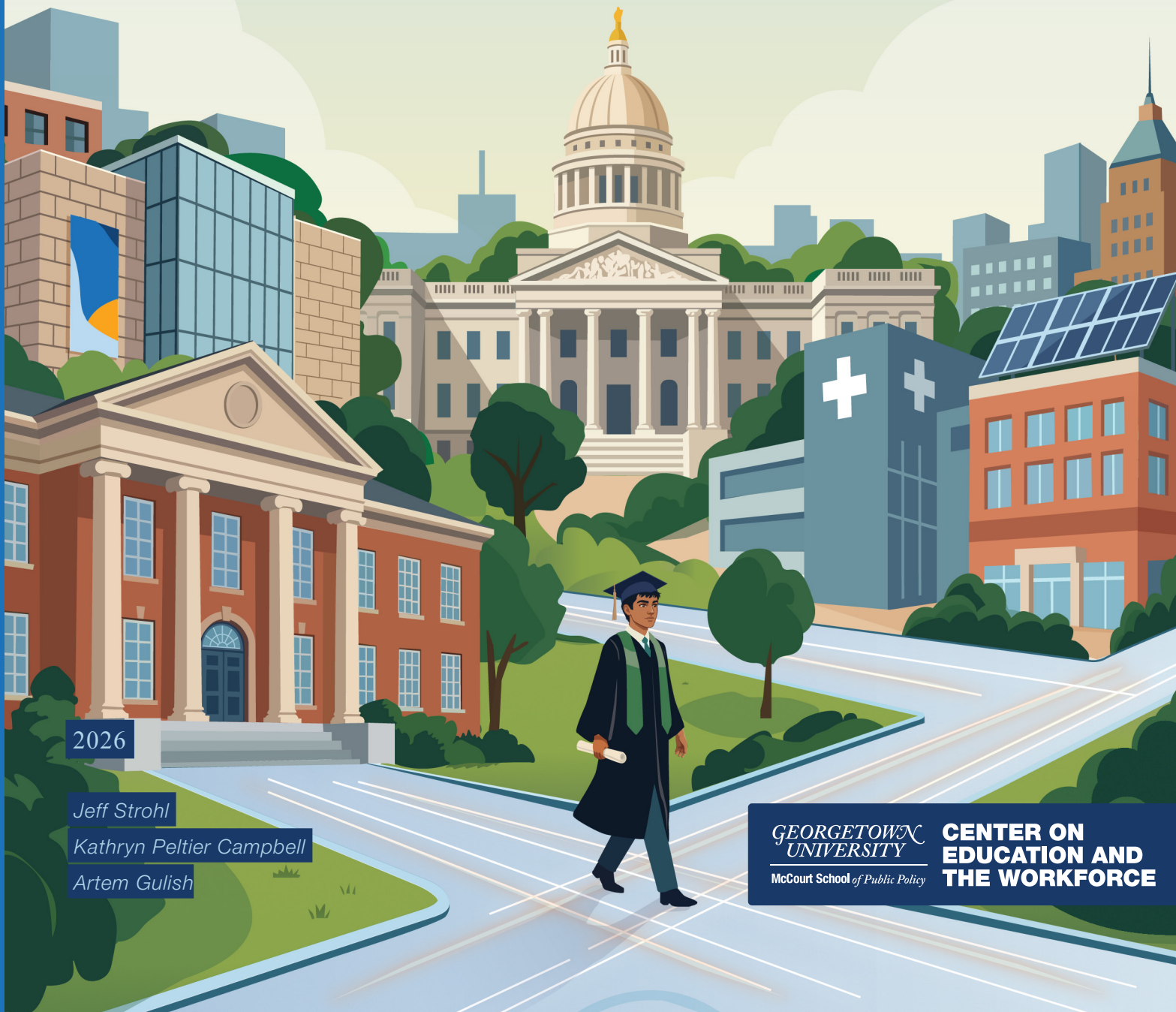
Report 1 in the Postsecondary Value Series

From Mann to Markets

Evolving Ideas About the Value of Postsecondary Education and Training to Individuals and Society



2026

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"The true business of the schoolroom connects itself, and becomes identical, with the great interests of society."

*Horace Mann, **1848***

"The burgeoning postsecondary education and training system has become the nation's workforce development system."

*Anthony P. Carnevale, **2016***

Introduction

In his final report as secretary of the Massachusetts Board of Education in 1848, Horace Mann drew on all he had learned at the helm of the Massachusetts common schools to outline why he saw education as the state's most valuable asset. Education, he argued, can help improve human health, reduce inequality, establish economic prosperity, and ensure that the government serves the interests of the people. Mann's final report is notable for describing education's value as an essential driver of economic abundance and societal flourishing, as well as for his famous characterization of education as "the great equalizer."[1]

Although Mann's primary focus was on state-supported public education for children in Massachusetts, his work has resonated far beyond its original scope, contributing to a broad vision of what education can accomplish. His observations continue to echo in debates today about the value of postsecondary education and training. Like Mann, today's educators and policymakers recognize that all levels of education—including postsecondary education—deliver important monetary and nonmonetary returns to individuals and society. Yet, the public conversation about the value of postsecondary education increasingly highlights monetary outcomes, at the risk of pushing nonmonetary outcomes into the shadows.[2]

It's not a coincidence that the focus on monetary outcomes has gained prominence just as demand for postsecondary education has grown in the workforce. As recently as 1983, only 32 percent of all jobs in the United States required any postsecondary education or training; that share is projected to rise to 72 percent by 2031.[3] Having more education is strongly associated with higher earnings for individuals and lower unemployment rates.[4] As a result, policymakers and the public have come to expect that postsecondary education will advance economic opportunity for students and workers while simultaneously contributing to nonmonetary outcomes like personal well-being. Many also expect that postsecondary education will further the common good through outcomes such as more cohesive communities, greater civic engagement, and deeper trust.

On average, postsecondary education and training deliver on these expectations, yet a postsecondary credential does not guarantee positive outcomes. Too many credentials fail to provide the return on investment that graduates hope to receive when they enroll in a degree or certificate program.[5] And too many students take on debt that negatively affects their lives

1 Mann, "Twelfth Annual Report of the Secretary of the Board of Education," 1849.

2 Carnevale, *We Need a New Deal Between Higher Education and Democratic Capitalism*, 2016.

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

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

5 Carnevale, "Including ROI in Revamped College Rankings," 2022.

when their credentials don't deliver the financial payoff they might have hoped to attain.[6] Thus, state policymakers and postsecondary reformers are increasingly focused on ensuring that college graduates earn "credentials of value," defined primarily according to monetary metrics.[7] Likewise, the federal government has instituted accountability measures to ensure that workers with a college credential earn more than workers with no more than a high school diploma.[8]

These measures are necessary and welcome to protect students from bad economic outcomes. At the same time, the focus on monetary outcomes does not capture the full value of education. Just as too little emphasis on earnings puts students at risk, too much emphasis on earnings alone can mean that we overlook the other essential contributions that postsecondary education makes to individuals and society. Watching the pendulum swing, we should question whether the focus on monetary value has gone too far, at the expense of higher education's role in individual and societal outcomes that cannot be measured as readily.[9]

While our hope is that education will prepare students to be both workers and citizens, there is some tension between education's role in our economy and its role in our democracy. Education's economic role is to develop and sharpen the skills that allow individuals and firms to compete in the marketplace. Its democratic role, meanwhile, is to promote equal opportunity and advance the common good by cultivating the collaborative and cooperative skills that a well-functioning society requires.

In the context of democratic capitalism, we expect education to deliver on both promises. However, the economic role of education emphasizes individual outcomes, which can come at the expense of the democratic role's more communal aims. We often ask education to serve as a bridge between the ideals of individual merit and equal opportunity, but we sometimes overlook the fact that opportunity isn't equal and that individuals do not succeed entirely on their own.[10]

As policymakers increasingly emphasize education's role in our economy, they risk downplaying its importance for our civic well-being and democracy.[11] Yet, education's economic and civic outcomes do not necessarily have to be in conflict. In fact, they can be mutually reinforcing, as the skills valued by employers also tend to support civic engagement. Still, these economic and civic outcomes are often

6 Zhang et al., "College Is Still Worth It, Even with Student Debt, but We Can Do Better," 2025.

7 Lumina Foundation, *A Stronger Nation*, 2024; National Conference of State Legislatures, "Credentials of Value," 2023; and Texas Higher Education Coordinating Board, "Ensuring Students Attain Credentials of Value," 2025.

8 Cohn, "Higher Education Accountability in the Budget Reconciliation Bill," 2025.

9 Marginson, "Higher Education and Public and Common Good," 2024.

10 As Anthony P. Carnevale, the founding director of the Georgetown University Center on Education and the Workforce, has written, "Education has also become the nation's popular alternative to the more direct economic benefits of the welfare state because it promises opportunity based on individual merit. . . . [But] in a society where people start out unequal, educational opportunity—especially postsecondary educational opportunity dictated by test scores and grades—can become a dodge, a way of laundering the found money that comes with being born into the right bank account or the right race." Carnevale, *We Need a New Deal Between Higher Education and Democratic Capitalism*, 2016.

11 Carnevale, *We Need a New Deal Between Higher Education and Democratic Capitalism*, 2016.

distinct[12]—and when economic outcomes become the primary measure of education's success, its civic impacts can be overlooked.

Further complicating the tension between economic and democratic outcomes is the fact that individual stakeholders have different objectives for postsecondary education and training. Policymakers want clear accountability and measurable performance so they can justify investments of public funding. Employers want programs that produce qualified workers, often with an emphasis on timely training to address immediate needs. Students and their families, meanwhile, are navigating a more complex and personal set of priorities.

In the short term, most students want to earn credentials that lead to better employment and earnings without incurring unsustainable levels of debt. In the longer term, they also want assurances that their investment of time and money will result in outcomes such as lasting economic security.[13] But economic outcomes are not the only factors they consider when deciding which programs to pursue. Some students also aim for personal enrichment, selecting schools based on a range of aspects of value,[14] including reputation in academics, athletics, or career preparation.[15] Others are interested in a campus's amenities or its proximity to their home;[16] still others focus more on affordability or flexibility and seek out online and hybrid program options.[17] These characteristics aren't always easy to quantify, falling under a more subjective sense of "fit."[18] Many students recognize that part of the value of college lies in its encouragement of "personal and intellectual growth,"[19] something that occurs in parallel with the better economic outcomes that postsecondary education can create.

Given the number of aims we have assigned postsecondary education—and its increasing importance in the US economy—it's little wonder that debates about its value are so complicated. To some extent, how we conceive of the value of postsecondary education depends on who is asking, what they are asking for, and why. Monetary metrics such as minimum standards for earnings outcomes matter because they can help protect students from financial exploitation

12 The Civic Learning and Democracy Engagement Coalition has called attention to this disconnect and made a cogent and thoughtful argument for the importance of "civic and democracy learning" in postsecondary education to prepare students for both democratic engagement and work. Civic Learning and Democracy Engagement Coalition, *Every Student, Every Degree*, 2024.

13 Cheche et al., *Varying Degrees 2025*, 2025; and LaFave et al., "Factors That Influence Student College Choice," 2018.

14 According to US Department of Education data, the top considerations for students when choosing a college include "academic quality/reputation," "desired program of study," "job placement," "cost of attendance," "graduate school placement," and "good social life," with more than 90 percent of 11th graders indicating that each of these factors would be "very important" or "somewhat important" to their college choice. LaFave et al., "Factors That Influence Student College Choice," 2018.

15 Welding, "Students' Top Factors in College Choice and Admissions," 2025.

16 Jacob et al., "The Consumption Value of Postsecondary Education," 2011; and Hillman, "How Far Do Students Travel for College?," 2023.

17 Welding, "Students' Top Factors in College Choice and Admissions," 2025; and Gallup and Lumina Foundation, *The State of Higher Education 2026*, 2026.

18 Coalition for College, "Types of College Fit," 2025.

19 Pew Research Center, *The State of American Jobs*, 2016.

and ensure that programs deliver on their economic promises, yet the individual and societal benefits associated with postsecondary education and training cannot be summed up using monetary metrics alone. When state governments or the federal government consider the gains from their investments in education, they ought to look beyond monetary metrics and consider less easily quantifiable benefits, such as the value of civic engagement and societal well-being.

In this report, we present a high-level view of how policymakers have conceptualized the value of postsecondary education and training in the United States. We trace the evolution in their thinking from the country's founding to the present day, describing how the pendulum has swung from a focus on education's broad role in a good society to a sharper focus on individual economic outcomes. We then describe how the formalization of human capital theory in the 1950s and 1960s converged with the increasing importance of postsecondary education for work to underpin a focus on monetary outcomes such as earnings and return on investment. Next, we evaluate the long-standing challenges related to measuring the various aspects of educational value, both monetary and nonmonetary. Finally, we consider how a framework connecting inputs and outputs could point toward policy levers for change and support system improvement that maximizes the value of postsecondary education and training to individuals and society.

An Abbreviated History of Value in US Education Policy: From the Whole Person to Human Capital

From the earliest years of the United States, the founders of our democracy viewed education as advancing the whole person as a citizen and as a moral and ethical human being, with the secondary outcome of strengthening society and democracy. The Northwest Ordinance of 1787, which outlined the steps for admitting states to the newly formed republic, made these connections explicit, stating that "religion, morality, and knowledge […] being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."[20]

In the states, such encouragement took the form of public education systems. Thomas Jefferson led the charge for a public university in Virginia, arguing in a proposed bill in 1779 that public education would be necessary in the emerging republic to guard against tyranny and support people's happiness by conveying knowledge, wisdom, and honesty.[21] Jefferson's long-standing dream of a centrally located public university came to fruition decades later with the founding of the University of Virginia in 1819.[22] In North Carolina, a bill establishing a public university in 1789 likewise indicated that education was necessary to support the "happiness of a rising generation and endeavor to fit them for an honourable [sic] discharge of the social duties of life."[23] In 1785, the charter for the University of Georgia similarly stated that education should foster "the love of virtue and good order" as necessary for "the happiness of free governments."[24] The common argument across these documents is that education hones the human qualities necessary for governance in a democratic republic—though legislators largely saw both education and political governance as the sole province of white men and thus denied access to free women, enslaved men and women, and men in other marginalized groups.

Several decades later, the Morrill Act of 1862 suggested a different reason for the nation's states to support postsecondary education: to prepare workers for jobs in industry. This first Morrill Act provided land for the establishment of universities that would teach "agriculture and the mechanic arts . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."[25] This act has been celebrated for opening the gates of

20 "Ordinance for the Government of the Territory of the United States North-West of the River Ohio," 1787.

21 Committee of the Virginia Assembly, "79. A Bill for the More General Diffusion of Knowledge," 1779.

22 Gates, "Serpentine Timeline," 2018.

23 Davie, "Bill to Establish the University of North Carolina," 1789.

24 Baldwin, "University of Georgia Charter," 1785.

25 Morrill Act of 1862.

higher education to the working classes. Later, the Morrill Act of 1890 further expanded access to education by establishing historically Black colleges and universities in the segregated South. The two Morrill Acts also played a role in transforming the face of higher education itself, with a utilitarian focus on technical skills that were outside the scope of a traditional liberal education.[26]

During the early 20th century, the push for more utilitarian forms of education continued as concerns about the future of American agriculture dovetailed with the structural upheavals of the industrial revolution. Lawmakers wanted to secure American agriculture and industry and provide pathways to prosperity in rural areas, and they invested in agricultural and vocational education to accomplish these goals. Just as Massachusetts had been a leader in establishing a state system of public schools, it was among the forerunners in incorporating industrial education within the classroom, starting with the requirement for public school students to learn drawing in preparation for work in industrial settings. In this period, debates raged among various stakeholders—including educators and legislators—over whether, and to what extent, general education and vocational education should be combined or separated. These debates reflected different views of the purposes of education and the value that education should convey. The Smith-Hughes National Vocational Education Act of 1917 established federal support for vocational education, planting the seeds for vocational learning tracks in secondary schools and strengthening the connections between education and applied learning on the job. The legislation supported President Woodrow Wilson's view that industry was as crucial to national security as military might.[27]

By 1947, a group of influential policymakers and educators held a contrasting perspective. In the report *Higher Education for American Democracy*, President Harry S. Truman's Commission on Higher Education argued that the nation's colleges were not "contributing adequately to the quality of students' adult lives either as workers or as citizens," noting that "this is true in large part because the unity of liberal education has been splintered by overspecialization." In the wake of World War II, the report called for reforms to ensure that postsecondary education would, among other outcomes, prompt students to establish an ethical "code of behavior"; instill a sense of personal and social responsibility; develop intellectual skills, emotional balance, and physical health; and find a "socially useful and personally satisfying vocation." The authors saw these broad-reaching outcomes—and equitable access to the education that provides them—as essential to the future of American democracy. Among the reforms recommended in the report were two years of free college; the authors also called for increased grant funding to support students' tuition, citing the GI Bill's recent success in increasing enrollment as proof of the gains that are possible with government support.[28]

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26 Justin Morrill, the namesake of the Morrill Act, wanted land-grant colleges to play a role in advancing American capitalism; he saw scientific education, rather than education in applied technical skills, as the best way to align the college curriculum with the needs of the economy, but he found that his views conflicted at times with the views of the working-class populace the land-grant colleges were intended to serve. Sorber, *Land-Grant Colleges and Popular Revolt*, 2018.

27 Blauch, *Federal Cooperation in Agricultural Extension Work*, 1933.

28 President's Commission on Higher Education, *Higher Education for American Democracy*, 1947.

While the two years of free college recommended in *Higher Education for American Democracy* never materialized at the national level, the federal government continued to call for more postsecondary education and training, albeit for evolving reasons. Ten years after the commission's report, the National Defense Education Act (NDEA) of 1958 bolstered federal investments in postsecondary learning using a different rationale. The NDEA aimed to buttress national security by developing talent in science, math, technology, and foreign languages. It sought to identify overlooked talent and distribute educational funding not for the sake of individuals and their livelihoods, but for the sake of the nation—although surely both individuals and the country would benefit.[29]

By the time President Ronald Reagan's National Commission on Excellence in Education released *A Nation at Risk* in 1983, something in the national psyche had shifted. In its preamble, *A Nation at Risk* promised that "all children by virtue of their own efforts, competently guided, can hope to attain the mature and informed judgment needed to secure gainful employment, and to manage their own lives." While the nation's youth would "thereby serv[e] not only their own interests but also the progress of society itself," the focus on how the individual can benefit from education had sharpened—as had the critique of the American educational system's failings. The report's opening pages used a litany of educational statistics to demonstrate how far American education was falling short, citing low functional literacy rates, declining standardized test scores, and the complaints of business and military leaders as proof of the system's failure. The report called for the use of standardized tests to "certify the student's credentials" and identify whether the student would benefit from further instruction.[30] This rhetoric reflected a post–World War II focus on measurement that echoes in today's "credentials of value."

The emphasis on standardized testing reached new heights decades later, when President George W. Bush's administration launched a new push for accountability by implementing the No Child Left Behind Act of 2001. The act went beyond previous education legislation by requiring states to establish accountability measures in their public K–12 systems—a controversial move that critics argued led educators to shift instructional time and resources toward reading and mathematics and away from subjects in which standardized testing was not the norm.[31] Shortly thereafter, President Barack Obama's administration supported a renewal of higher education's public purposes[32] while also planning to institute its own version of accountability, this time for postsecondary institutions, with a focus on cost, completion, and earnings metrics for students who had received federal loans to enroll in college. But resistance from college leaders led the

29 National Defense Education Act of 1958.

30 Gardner et al., *A Nation at Risk*, 1983.

31 Dee and Jacob, "The Impact of No Child Left Behind on Students, Teachers, and Schools," 2010.

32 During the Obama administration, the US Department of Education supported a National Task Force on Civic Learning and Democratic Engagement, which produced a "national call to action" titled *A Crucible Moment: College Learning and Democracy's Future* in 2012.

administration to change course and release the College Scorecard, a tool designed to provide transparency to students and their parents rather than hold postsecondary institutions directly accountable for students' employment and earnings outcomes.[33] During this era, the US Department of Education's attempts to regulate education providers based on gainful employment outcomes were stymied by legal and administrative roadblocks.[34]

These roadblocks delayed the push for earnings-based transparency and accountability—but not for long. In 2023, the US Department of Education adopted Financial Value Transparency and Gainful Employment (FVT/GE) regulations for postsecondary programs and institutions.[35] The budget reconciliation bill (also known as the One Big Beautiful Bill Act) that passed in summer 2025 included new "Do No Harm" earnings accountability standards for postsecondary education programs to maintain access to federal student loans. More recently, the US Department of Education combined a modified version of the FVT/GE regulations with the "Do No Harm" accountability standards in its Student Tuition and Transparency System (STATS) and Earnings Accountability rule, released in June 2026. The current earnings standard requires that—within four years after graduation—an average completer must earn at least as much as a comparable worker who is between the ages of 25 and 34, is not enrolled in postsecondary education, and has a lower level of educational attainment. For undergraduate programs, a comparable worker has a high school diploma in the state where the institution is located; for graduate programs, a comparable worker has a bachelor's degree in the same field of study, either in the state or nationwide, or a bachelor's degree in any field in the state.[36]

Greater transparency and accountability related to students' earnings outcomes have been a welcome change and one that we at the Georgetown University Center on Education and the Workforce have consistently argued is necessary.[37] Students make increasingly large investments of time and money in their education, and they deserve to know what they can expect at the end of their educational journeys—with an important caveat that a program's prior performance at the median does not guarantee similar outcomes for future program participants. While educational investments are unique in some ways, they are like other investments in that they involve risks, including the risk that the monetary payoff won't be what the investor had anticipated. The federal data infrastructure and many

33 Rothwell, "Understanding the College Scorecard," 2015.

34 Weiss, "The Tortured Path of the Gainful Employment Rule," 2023.

35 US Department of Education, Office of Postsecondary Education, "Financial Value Transparency and Gainful Employment," 2023.

36 If less than 50 percent of students reside in the state where the institution is located, all state-level thresholds are replaced with nationwide thresholds. While the earnings test in the One Big Beautiful Bill Act only applies to degree programs, in the final rules, the US Department of Education combined the regulations from the bill with the revamped Financial Value Transparency and Gainful Employment regulations to encompass all postsecondary education programs, including certificates. Act to Provide for Reconciliation Pursuant to Title II of H. Con. Res. 14, Pub. L. No. 119-21, 139 Stat. 72 (2025); and US Department of Education, "Accountability in Higher Education and Access Through Demand-Driven Workforce Pell," 2026.

37 Cheah et al., *Ranking 4,600 Colleges by ROI*, 2025; Gulish et al., *Graduate Degrees*, 2024; Strohl et al., *A Law Degree Is No Sure Thing*, 2024; Carnevale and Wenzinger, *Stop the Presses*, 2022; Carnevale et al., *The Most Popular Degree Pays Off*, 2022; Carnevale et al., *How Limits to Educational Affordability, Work-Based Learning, and Career Counseling Impede Progress Toward Good Jobs*, 2022; and Carnevale et al., *Career Pathways,* 2017.

state data infrastructures have made enormous strides in collecting and publicizing information about students' earnings outcomes. Federal and state legislatures have additionally instituted measures intended to protect students from bad actors in the education delivery space by penalizing programs whose graduates do not receive adequate earnings.[38]

The focus on monetary outcomes is justified because potential students need to know that the economic opportunity they seek from postsecondary education and training is not an empty promise. The taxpaying public, meanwhile, needs reassurance that their investments in the postsecondary system produce meaningful returns. At the same time, this focus is not always adequately balanced by consideration of the many nonmonetary outcomes associated with postsecondary education and training. Among educational outcomes, earnings are much easier to measure than outcomes such as cognitive ability and character.[39]

The timing of outcomes measurement is another complicated issue. The more time elapses between program completion and outcomes measurement, the more results may reflect the influence of mediating factors—such as intervening work experience—that are themselves shaped by the original postsecondary experience. The nature of this relationship makes it difficult to parse which factor has the greatest influence on outcomes. These issues are further complicated by the fact that so many of today's students enter, depart, and reenter the education system throughout their working lives. The fact that some outcomes are more easily measured than others, and more easily measured at shorter-term intervals, substantially complicates efforts to recognize the full scope of value that postsecondary education and training can confer across a person's lifetime.

The economic returns of postsecondary education are simpler to measure than less-tangible outcomes such as individual well-being and democratic education that ultimately support the public interest. Because economic returns are more easily quantifiable, individuals and institutions are inclined to use monetary metrics to measure return on investment. The result is a marketization of postsecondary education, which narrows the scope of what policymakers expect education to provide and thereby narrows what education *can* provide.

A government that values education solely for its individual monetary outcomes may invest in education differently than a government that sees the full scope of educational value, including direct and indirect effects, as well as monetary and nonmonetary benefits. Evidence suggests that students similarly adjust their behavior according to the information they have available and how it frames their goals.[40] As Michael Tomlinson writes, "The attainment of desired outcomes . . .

38 In the second and third reports in this series, we provide more detail on federal and state policies in this area.

39 For one attempt to measure the strength of the relationship between postsecondary education and outcomes related to cognitive ability, character, health and well-being, and civic participation, see Gallup and Lumina Foundation, *Education for What?*, 2023.

40 Binder et al., "Career Funneling," 2016.

becomes a driving incentive and can marginalize other areas . . . which cannot be quantified."[41] Indeed, single incentives can lead to narrow conceptions of value; an exclusive focus on private financial outcomes can obscure the fact that education also yields nonmonetary benefits, both private and public. These benefits include greater civic engagement, more cohesion within communities, greater involvement in philanthropy and volunteerism, and more trust within a community.[42]

Moreover, this narrow framing is actually out of step with how the public perceives the value of college. While US adults see postsecondary education as having a positive impact on earnings, they also see it as advancing multiple nonmonetary outcomes of societal import, such as innovation and discovery and the cultivation of a more resilient and civically engaged society.[43] When we lose sight of the full range of outcomes contributing to value, we risk reducing access to education options with strong nonmonetary benefits.

In his critique of education in the United Kingdom, Simon Marginson suggests that a shift in incentives has occurred across English-speaking countries, including the United States: "All Anglophone governments model higher education as a competitive market, focusing on pecuniary benefits for individuals but not the non-pecuniary individual benefits, and occluding most of the collective benefits shared with the rest of society."[44] In other words, because we cannot fully capture the value of nonmonetary individual and societal benefits in market terms, we risk losing sight of these important benefits that education provides. These collective benefits include workforce preparation for jobs in crucial occupations—such as early childhood education, social work, and healthcare support—that may require postsecondary credentials but don't yield commensurately high pay. Workers in these occupations play an essential role in the labor market and society.[45]

Like Marginson, Nobel Laureate James Heckman and his colleagues flag a wide range of nonmarket outcomes related to better health and civic engagement and lower rates of incarceration and dependence on public supports. They caution that "ignoring these [nonmarket] outcomes could lead policymakers to greatly underestimate the benefits of supporting education."[46] After all, what dollar amount can we put on the value of a functioning democracy?

41 Tomlinson, "Conceptions of the Value of Higher Education in a Measured Market," 2018.

42 For discussion of nonmonetary benefits that contribute to the broader public good, see the third report in this series: Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

43 Gallup and Lumina Foundation, *Education for What?*, 2023.

44 Marginson, "Higher Education and Public and Common Good," 2024.

45 Baum and Espinosa, *Exploring the Importance of Low Wage, High Social Value Careers,* 2021.

46 Heckman et al., "The Nonmarket Benefits of Education and Ability," 2018.

The Influence of Human Capital Theory on How We Value Education

The formalization of human capital theory in the late 1950s and early 1960s deeply influenced the shift from a whole-person model of education to a market-driven model.[47] During this period, the "founding fathers of the economics of education"—Theodore W. Schultz, Jacob Mincer, and Gary Becker—articulated an approach to measuring the value of education that was firmly based in a theory of human capital.[48] Using the gender-specific language of his day, Schultz stated, "I propose to treat education as an investment in man and to treat its consequences as a form of capital"; he further argued that "education becomes a part of the person receiving it."[49] Thus, Schultz launched the modern era of human capital theory. Around the same time, Mincer established the now-standard approach to estimating the earnings returns of education; Becker likewise "shaped the discipline of economics of education into its typical neoclassical approach," using human capital theory to inform his work on human behavior.[50] Together, these three theorists laid the groundwork for human capital theory as we know it today.

Human capital theory is based on the observation that education builds skills that enable people to be more productive in their work, which in turn leads to higher earnings.[51] It suggests a personal investment framework for understanding the value of education, in which people invest resources of time and money in their own development (i.e., building capital) in exchange for a future stream of higher earnings. The human capital model presents a neat conceptual framework that underpins a causal link between education and earnings.

Mincer spent the early part of his career—and focused his dissertation—on providing empirical validation of human capital theory. His most enduring contribution, the Mincerian human capital model (or the earnings function), became the foundation for many microeconomic approaches to research on the returns on education. In its most basic form, the Mincerian earnings function models earnings as a function of education, experience, and experience squared.[52] Later researchers incorporated other observed explanatory factors (such as industry, occupation, sex, and race) as the data allowed or as new ideas sprouted. The Mincerian model has spawned

47 Leoni, "A Historical Review of the Role of Education," 2023.

48 Leoni, "A Historical Review of the Role of Education," 2023.

49 Schultz, "Capital Formation by Education," 1960.

50 Leoni, "A Historical Review of the Role of Education," 2023.

51 Leoni, "A Historical Review of the Role of Education," 2023.

52 Estimates of the squared term in these models are commonly negative, indicating that the earnings growth slows with age.

countles sstudies across many countries validating that increases in education lead to increases in earnings through increases in productivity.[53]

If Americans historically believed that the benefits of higher education extend beyond monetary gains, how did the human capital model come to dominate our understanding of educational value? The answer lies in the growing link between postsecondary education and earnings potential in the United States. After declining between 1967 and 1976,[54] the college wage premium grew quickly starting in the early 1980s[55] before stabilizing above 65 percent after 2010.[56] Over a similar time period, the demand for college-educated workers rose dramatically: In 1983, only 32 percent of jobs required any education or training beyond high school, compared with around 68 percent of jobs in 2021.[57]

This rising demand for workers with postsecondary education and training is often attributed to skills-biased technological change[58]—the idea, now widely accepted, that new technologies require the advanced cognitive and noncognitive skills associated with postsecondary education.[59] As skills-biased technological change quickly transformed the job market, the human capital model presented a clear, believable, and empirically sound conceptual framework for understanding the value of postsecondary education and training. Thus, the growing strength of the relationship between education and earnings beginning in the late 20th century arguably accelerated the widespread acceptance of the human capital model.[60]

Moreover, as postsecondary education and training became more valuable, they also became more expensive. Total tuition, fees, room, and board (in constant dollars) rose by about 137 percent at four-year institutions and 140 percent at all institutions between the 1983–84 and 2020–21 academic years (roughly spanning the period between *A Nation at Risk* and the COVID-19 pandemic), before dropping slightly in recent years.[61] Concerns about rising costs helped prompt both policymakers and individuals to move from an emphasis on the whole-person model of education toward a focus on various return-on-investment (ROI) metrics. The concern with earnings and cost as components of ROI is informed

53 Patrinos, "Estimating the Return to Schooling Using the Mincer Equation," 2016; Lemieux, "The 'Mincer Equation' Thirty Years After *Schooling, Experience, and Earnings*," 2003; and Currie and Card, "Jacob Mincer," 2023.

54 Leuven and Oosterbeek, "Overeducation and Mismatch in the Labor Market," 2011.

55 James, "The College Wage Premium," 2012.

56 The 65 percent premium represents a five-year moving average of the earnings of full-time workers ages 25–54 with a bachelor's degree relative to the earnings of workers with a high school diploma alone; Georgetown University Center on Education and the Workforce analysis of data from the US Census Bureau and Bureau of Labor Statistics, Current Population Survey (CPS), 1995–2023.

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

58 Early mentions of skills-biased technological change can be found in Bound and Johnson, "Changes in the Structure of Wages During the 1980's," 1989; and Katz and Murphy, "Changes in Relative Wages, 1963–1987," 1991. See also Goldin and Katz, "The Race Between Education and Technology," 2007.

59 Autor et al., "The Skill Content of Recent Technological Change," 2003.

60 Patrinos, "Estimating the Return to Schooling Using the Mincer Equation," 2016.

61 Georgetown University Center on Education and the Workforce analysis of data from the US Department of Education, Table 330.10 of the *Digest of Education Statistics* (online tables), 2023.

by the human capital model's basic investment framework, the empirical validity of which has been demonstrated over time through ample scholarship. Surveys of the literature provide just a taste of some of the applications of the human capital model around the world and in multiple contexts.[62]

Despite the empirical validity and extensive use of the human capital model, however, three concerns arise when the model is applied to measuring the value of education:

- The model seldom, if ever, incorporates nonmonetary outcomes and thereby provides insight on only one facet of the value of education.
- The model consistently demonstrates that many factors beyond education influence earnings.
- By relying on point-in-time earnings, the model does not account for differential earnings growth by degree level and potentially by education program.[63]

We expand on each of these points in this section.

First, the very conciseness that makes the Mincerian model appealing also glosses over the many ways in which education generates nonmonetary value to individuals. These nonmonetary effects do not fit into the equation's quantitative model, but they are meaningful in their own right. Moreover, they may also influence monetary outcomes by affecting workers' productivity and therefore their earnings. For example, education can enhance leisure activities,[64] improve self-image on the job,[65] provide for flexibility in the face of change,[66] and promote human flourishing.[67] These effects reflect cognitive and noncognitive abilities that are enhanced by the education process[68] and enable people to make better use of information, consider a wider set of choices, and engage in more-informed decision-making.[69]

Second, empirical work demonstrates that earnings depend on a large number of economic and demographic factors beyond the education and experience terms in the basic equation. These additional factors include some that are influenced by education (such as choice of occupation

62 Goldin, "Human Capital," 2016; Patrinos, "Estimating the Return to Schooling Using the Mincer Equation," 2016; Polachek, "Mincer's Overtaking Point and the Lifecycle Earnings Distribution," 2003; Jio and Kero, "Systematic Literature Review of Human Capital in Context of Economic Growth," 2023; and Grossman, "The Human Capital Model," 2000.

63 Research focused directly on investigating differential earnings growth by program is underdeveloped.

64 Michael, "Education and Consumption," 1975.

65 Hughes et al., "Occupational Prestige," 2024; and Binder et al., "Career Funneling," 2016.

66 Schultz, "The Value of the Ability to Deal with Disequilibria," 1975.

67 Olson, "On the Promotion of Human Flourishing in Education," 2025.

68 For detailed surveys of the literature, see Heckman et al., "The Nonmarket Benefits of Education and Ability," 2018; Hanushek, "Education, Economics of," 2015; Marginson, "Higher Education and Public and Common Good," 2024; and Oreopoulos and Salvanes, "Priceless," 2011.

69 Schultz, "The Value of the Ability to Deal with Disequilibria," 1975; and Oreopoulos and Salvanes, "Priceless," 2011.

and industry) and some that are not directly influenced by education but correlate with differences in educational opportunity (such as race and gender). Racial and gender disparities exist even among students with similar educational credentials: Women earn less than men with similar levels of educational attainment,[70] while Black/African American, Hispanic/Latino, and Indigenous workers earn less than their white counterparts with similar educational attainment.[71] Researchers have found that labor-market discrimination plays a role in these disparities.[72] Likewise, social capital plays a role in people's workforce outcomes, with individual connections opening doors to opportunity.[73] Factors such as firm size,[74] geographic location,[75] prevailing wages, and other labor-market conditions also affect earnings levels.

Third, while it is most convenient to measure earnings outcomes at a single point in time, doing so fails to account for differential wage growth over time. The rate at which workers' wages grow varies based on their level of educational attainment,[76] program of study,[77] and occupation.[78] For example, Deming has established that more-educated workers are more likely to work in managerial and professional jobs, where their productivity is enhanced by learning on the job.[79] Other research demonstrates that workers with higher levels of educational attainment receive more training after graduation,[80] which boosts their productivity and thereby leads to wage growth. Mincer investigated whether wage growth differs by education in his 1958 dissertation, but he ultimately excluded an education–experience interaction term from the equation because empirical evidence convinced him that it was unnecessary. More recently, Lemieux has found that experience has greater returns based on education, which differs from Mincer's conclusion. Lemieux's explanation is that increased educational attainment in newer cohorts following the 1960 Census data that Mincer used generates these significant interaction effects.[81]

Taken together, these three points suggest the need for caution when interpreting earnings as a measure of the value of education. The first point suggests that earnings should be considered as a conservative estimate of value and that we should include nonmonetary metrics in the production function to fully capture aspects of educational value beyond earnings, such as lower unemployment

70 Carnevale et al., *Women Can't Win*, 2018.

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

72 Carnevale et al., *How Racial and Gender Bias Impede Progress Toward Good Jobs*, 2022.

73 Chetty et al., "Social Capital and Economic Mobility," 2022.

74 Oi and Idson, "Chapter 33: Firm Size and Wages," 1999.

75 Hillman et al., *Calculating the Return on Investment in Postsecondary Education*, 2025.

76 Cheah et al., *Ranking 4,600 Colleges by ROI*, 2025.

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

78 Deming attributes differences in wage growth by education level in part to occupational sorting; Deming, "Why Do Wages Grow Faster for Educated Workers?," 2023.

79 Deming, "Why Do Wages Grow Faster for Educated Workers?," 2023.

80 Osterman, "How American Adults Obtain Work Skills," 2021.

81 Lemieux, "The 'Mincer Equation' Thirty Years After *Schooling, Experience, and Earnings*," 2003.

rates, more job stability, and preparation of qualified workers ready to fill critical roles in socially necessary occupations. The second point suggests that we need to account for context when using earnings as a measure of program quality because earnings reflect multiple labor-market dynamics beyond the influence of the educational program. The third point suggests that when evaluating monetary returns, we need to consider multiple investment horizons to account for both longer- and shorter-term outcomes.

Despite its limitations, we believe the human capital model offers a useful framework for measuring the broad value of postsecondary education and training and establishing accountability for program outcomes. Yet, as discussed, the model's dominant focus on monetary outcomes risks obscuring nonmonetary outcomes that are critical to ensuring both individual enrichment and higher-order civil and social welfare. In the next section, we examine some of the challenges associated with broadening our measurement models to look beyond monetary returns.

The Long-Standing Challenges Associated with Measuring Value

Certainly, it is much easier to argue for including nonmonetary outcomes when assessing the value of postsecondary education and training than it is to identify practical ways to incorporate these measures. John Maynard Keynes described social science phenomena as separable into three buckets:

1. those that can be measured
2. those that can be rank ordered, though precise measure cannot be made
3. those that require expertise to assess[82]

Keynes's observation holds true for the outcomes of higher education.[83] Some educational outcomes are easily measurable in dollar amounts, such as earnings after program completion or monthly student loan payment amounts. Some can be monetized, such as the government's savings when higher levels of education correlate with lower expenses related to health and incarceration. Some cannot be expressed in monetary terms but are still measurable, such as self-reported well-being.[84] Still others seem to elude measurement entirely—for example, the ability to interpret the world through the lens of an academic discipline or the satisfaction that comes from appreciating a historical or scientific allusion in a work of art.

Despite this range, by taking inspiration from the human capital model, federal and state accountability systems commonly focus on easily quantifiable metrics, such as earnings relative to cost. This focus on straightforward metrics is a pragmatic approach from a policy perspective, and it may be a necessary approach to protect students from bad financial outcomes. At the same time, this approach can miss the rich depth and the broad scope of value that is generated by education. Individuals expect more from their degrees than higher earnings; they want fulfilling work and greater well-being. If what we measure reflects and reframes what we value, an exclusive focus on monetary metrics may lead us to undervalue the full impact of education on people as human beings.

When nonmonetary outcomes can be quantified in monetary terms, including them in assessments of the value of postsecondary education and training is relatively straightforward, at least at a societal level.[85] Better community health, for example, can be approximated by lower health expenditures, and lower crime can be approximated by lower criminal justice expenditures. In some cases, however,

82 Based on Simon Marginson's summary of Keynes's work. Marginson, "Higher Education and Public and Common Good," 2024.

83 Marginson, "Higher Education and Public and Common Good," 2024.

84 For an example of survey polling on well-being, see Gallup and Lumina Foundation, *Education for What?*, 2023.

85 It is not feasible to tie many society-wide outcomes to specific providers or programs.

the benefits of education may not be quantifiable in monetary terms, even indirectly. By failing to consider these broader, nonmonetary contributions to the public good, states may suffer unmeasured losses if programs are cut or restricted based solely on earnings metrics. For example, programs leading to careers in social work or early childhood education may not produce high earnings, but they may be necessary for workers to meet licensure requirements and prepare students for roles that are important to societal well-being. Weakening the pipeline to these professions would be highly detrimental to society overall.

Measurement difficulties aside, there is rarely a clean divide between the monetary and nonmonetary benefits of education. In fact, some nonmonetary benefits of education support market functioning. For instance, education enhances trust;[86] trust in turn helps societies and economies operate smoothly.[87] Seen through a sociological lens, trust also builds social capital and enhances individual interactions in ways that boost the civic functions underpinning democracies and support societal functioning more generally. For example, Nobel Laureate Elinor Ostrom's work on common-pool resources highlights just how important trust is if societies are to avoid the "tragedy of the commons."[88]

Likewise, work and well-being are often intertwined. In the United States, work is a key source of self-image: In the words of Nobel Laureate Robert Solow, "social status and self-esteem are strongly tied to both occupation and income."[89] Worldwide, these connections between work and self-esteem may be especially strong in societies that encourage workers to value their jobs over their personal lives.[90] Education can also be a conduit to work that is itself a source of well-being. Workers with more education have better access to jobs that are more rewarding and that offer rich social interactions,[91] including jobs that involve less-routine tasks.[92]

So, what should policymakers do, given the challenge of disentangling the multiple strands of value derived from education? The answer depends on the goal. So far, states have primarily implemented policies that aim to protect students and taxpayers from bad financial outcomes

86 Charron and Rothstein, "Does Education Lead to Higher Generalized Trust?," 2016; Connaughton, "Social Trust in Advanced Economies Is Lower Among Young People and Those with Less Education," 2020; Huang et al., "College Education and Social Trust," 2011; Mallory, "Social, Civic, and Institutional Trust," 2024; and Ortiz-Ospina et al., "Trust," 2024.

87 In economic terms, money is a good example of why trust is important to economic functioning. Modern economies are able to function because people trust that the currency they hold can be transformed into a good or a service at some time in the future; when hyperinflation undermines that trust, the economic and societal fallout demonstrates the consequences of low trust for the economy. For a discussion of the role trust plays in economic functioning, see van der Cruijsen et al., "The Impact of High Inflation on Trust in National Politics and Central Banks," 2023. For a discussion of how trust operates at the household level, see Beckmann and Scheiber, "The Impact of Memories of High Inflation on Households' Trust in Currencies," 2012.

88 Ostrom et al., *Rules, Games, and Common-Pool Resources*, 1994.

89 Solow, *The Labor Market as a Social Institution*, 1990, quoted in Oreopoulos and Salvanes, "Priceless," 2011.

90 The Japanese concept of *karoshi*, which translates to "death from overwork," is one extreme consequence of an overemphasis on work. Santillanes, "Karoshi," 2023.

91 Oreopoulos and Salvanes, "Priceless," 2011.

92 Autor et al., "The Skill Content of Recent Technological Change," 2003.

by cutting funding to programs that don't deliver a positive return on investment. With this goal in mind, earnings and employment metrics are appropriate tools. Policymakers can hold institutions and programs accountable based on the median earnings or return on investment of former students, both employed and unemployed. More than half of states now use a performance-based funding model to determine institutional allocations,[93] and a growing number of these states use workforce metrics (such as in-demand credentials, job placement, and earnings) as part of their models.[94]

Beyond minimizing negative financial outcomes, another goal might be to improve underperforming programs rather than cutting them. If improving such programs is the intention, contextual information—such as information about the business cycle—is important. Such information can inform policy by allowing stakeholders to determine whether lackluster outcomes stem primarily from poor program quality or principally from external factors, such as fluctuations in the labor market. Student outcomes may also depend on employer behavior or labor-market policies rather than education policies and education program quality per se. For example, education policies are unlikely to affect employer decision-making about employee compensation or job structure, such as whether to hire workers full time with benefits or for a short-term contract. To the extent that student outcomes reflect labor-market trends or employer behavior, policymakers will need to pursue labor-side policies to improve workforce outcomes.

The third and perhaps most challenging goal is to protect programs with high social value that would be eliminated if measured by pure monetary metrics alone. Programs that have high social value but lead to jobs with low pay—such as teaching, social work, and medical assisting—could be at risk of losing state support, with detrimental consequences for society. Allowing state support for education to erode based solely on individual financial metrics would deprive individuals, states, and society overall of the broad range of benefits associated with investments in postsecondary education.[95] Thus, when evaluating their investments in education, states should take an expansive view of the monetary and nonmonetary outcomes associated with postsecondary education and training. Broader measures of value are not only appropriate but also necessary.

In a companion report, *A Framework for Assessing the Value of Postsecondary Education and Training*,[96] we suggest approaches to expanding the phenomena included in broad assessments of the value of education, starting with what we can currently measure and reaching toward new possibilities for measurement. We also provide specific guidance on how to assess the outcomes of postsecondary education and training in a state accountability framework. As we argue in the following section, the production function provides one way to think about how to accomplish this task.

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93 Education Commission of the States, "Postsecondary Education Funding 2025," 2025.

94 Kelchen et al., "Investing in the Workforce," 2024; and Cardenas and Lugo, "Postsecondary Education Funding 2025," 2025.

95 Some states recognize the value of nonmonetary benefits and include these benefits in their reports. See, for example, Kentucky Council on Postsecondary Education, *Higher Education's Return on Investment*, 2020.

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

Moving the Needle Toward System Improvement with the Production Function

The modern era of human capital theory launched more than a series of empirical regressions; it also led to the development of the education production function.[97] The education production function borrows from economic theory to model education outcomes in a framework where inputs affect the "production" of education and generate outputs, with the connections among inputs and outputs suggesting leverage points for change. Despite our critiques of the human capital framework, we find that the production function plays a practical role in helping us identify these potential leverage points.

In economics, production functions can help businesses determine how to combine capital and labor inputs to maximize profit outputs.[98] Education economists have borrowed this conceptual framework to study education as a process with inputs and outputs. While education economists have not created a similar mathematical expression of the education production function, the education production function model nonetheless enables us to identify areas where education policy has the potential to affect outcomes.

Researchers often credit *Equality of Educational Opportunity*—commonly referred to as the Coleman Report—as the intellectual catalyst for the education production function's development. Commissioned by the US Congress in response to the Civil Rights Act, the Coleman Report concluded that social capital inputs such as resources in the home were the primary drivers of educational outputs such as standardized test scores.[99] Subsequent research has concluded that this finding was overstated and that educational outputs are driven by many other meaningful inputs, including school expenditures, teacher quality, and class sizes.[100] Such research has primarily focused on the K–12 space, where widely available data on students' standardized test scores and studies on factors such as class sizes and teacher and principal quality have enabled rich analysis.[101]

97 Hanushek, "Education Production Functions," 2008; Pritchett and Filmer, "What Educational Production Functions Really Show," 1997; Lazear, "Educational Production," 2001; and Ghosh, "The Foundation and Theoretical Advances of the Education Production Function from 1960s to the Present," 2023.

98 A standard formulation of this concept is the Cobb–Douglas production function, which provides a neat recipe to efficiently combine capital and labor via production, offering insight into how to optimize business investments. Cobb and Douglas initially expressed this function as $P = bL^k C^{1-k}$, with L being labor, C being capital, k and 1-k being the relative proportions of labor and capital, and b being a coefficient. See Biddle, "The Introduction of the Cobb–Douglas Regression," 2012.

99 Coleman et al., *Equality of Educational Opportunity*, 1966.

100 For one of many surveys of research on the relationships among resources and educational outcomes, see Hanushek, "Education Production Functions," 2008.

101 Marginson, "Higher Education and Public and Common Good," 2024; and Hanushek, "Education, Economics of," 2015. Work on education production functions is much more advanced in the K–12 sector, where better process data exist, such as test-based value-added models enabling the study of and differentiation between classroom, teacher, and principal effects on student progression.

In contrast with the research on K–12 education, efforts to apply the education production function to postsecondary education are arguably more limited,[102] with work primarily focused on issues of access, attendance, financial aid, and cost.[103] Some experts have expressed concerns about the use of the education production function in the postsecondary space due to factors such as data limitations, selection biases for students and faculty that might complicate the relationships among inputs and outputs, and the difficulty of distinguishing among the effects of higher spending and higher selectivity at elite institutions.[104] Researchers have made strides in this direction, with work demonstrating differential impacts depending on whether the expenditures are for instructional or student supports.[105] The education production function offers further promise for unpacking the black box of what constitutes an effective education—especially as data collection and connectivity among data sets improve.

In another report in this series, *Measuring Postsecondary Value*, we build on the idea of the education production function to begin conceptualizing a postsecondary value model.[106] In this model, inputs include student expenditures, institutional expenditures, and state and federal expenditures. These inputs lead to educational outputs (for instance, access rates, success rates, and attainment rates[107]) that in turn produce outcomes such as earnings and employment after leaving school. We see inputs as potential leverage points where changes in policy can affect outcomes and outputs either positively or negatively. We are specifically concerned with resource inputs that reflect a monetary investment in education. We also recognize that the education process itself transforms inputs into outputs and suggests leverage points for improving outcomes. Policy levers can have a clear impact on these inputs and outputs and thus affect students' life outcomes, including their employment, earnings, wealth, and well-being. While our focus in this series is on educational policy and practice, the same approach could be applied to the workforce side of the equation—and we recognize that there are significant limitations to what education can accomplish without the involvement of employers.

The aspiration to develop a postsecondary value model is ambitious for a number of reasons, including the persistent measurement challenges we describe in this report. These measurement challenges are exacerbated by how difficult it is to assign causality in education research, especially when education is just one determinant of earnings. But these challenges should not stop us from working toward a

102 Marginson, "Higher Education and Public and Common Good," 2024; and Hanushek, "Education Production Functions," 2008.

103 Hanushek, "Education, Economics of," 2015.

104 For example, see Pritchett and Filmer, "What Educational Production Functions Really Show," 1997; Ehrenberg, *Tuition Rising*, 2000; and Bowen, *The Costs of Higher Education*, 1980.

105 See, for example, Webber and Ehrenberg, "Do Expenditures Other Than Instructional Expenditures Affect Graduation and Persistence Rates in American Higher Education?," 2010.

106 Engle et al., *Measuring Postsecondary Value*, 2026.

107 Approaches to these metrics vary. For example, one approach to measuring the access rate is to measure the representation of students from underserved groups at an institution and compare it with the group's representation within the community. For more detail on potential approaches to these metrics, see the third report in this series: Gulish et al., *A Framework for Assessing the Value of Postsecondary Education and Training*, 2026.

model that could help improve students' pathways into postsecondary education and then onward through life and work.

Our work on a postsecondary value model builds on the work of many others to understand and improve the connections between education and labor-market outcomes. Efforts such as the Education-to-Workforce Indicator Framework[108] have made strides in this direction by identifying extensive metrics to measure inputs and outputs at the institution and system levels, from preschool through postsecondary education to the workforce. Advances in administrative data systems could deepen our understanding of what drives postsecondary attainment and labor-market outcomes.[109] Specifically, advances in statewide longitudinal data systems and College Scorecard data reporting may eventually lead to more robust postsecondary production models. Access to national student unit record data connecting education pathways with labor-market outcomes (similar to what exists in many statewide longitudinal data systems) would also bolster the possibilities for these models.[110] Such advances would directly affect state accountability systems for institutions and programs and the identification of credentials of value—that is, credentials that confer monetary and nonmonetary value to those who attain them.

We believe that our Postsecondary Value Model points toward education policies and educational practices that can be actionable levers for enhancing the value of postsecondary education and training. Education and training policy focused on accountability can generate incentives for programs and institutions to improve students' workforce and life outcomes, though more work is needed so we can better understand how contextual factors such as business cycles and structural economic factors affect elements of educational value. Policymakers need to hold themselves accountable—and be held accountable by their constituents—for the steps they take to amplify and ensure postsecondary educational value. At the end of the day, policymakers hold the resource levers that directly affect postsecondary value.

108 Developed by Mathematica and the Gates Foundation in consultation with a group of advisors, the framework "is designed to encourage greater cross-sector collaboration and alignment across local, state, and national data systems by promoting the use of a common set of metrics and principles to assess and address disparities along the pre-K-to-workforce continuum." Gonzalez et al., *Education-to-Workforce Indicator Framework*, 2022.

109 Hanushek, "Education Production Functions," 2008.

110 Proposals associated with the College Transparency Act, reintroduced repeatedly in Congress since 2017, are examples of efforts to build a student unit record data system.

Conclusion

Ultimately, we want education to empower people to lead their best possible lives. Education can empower individuals directly by providing the skills and credentials that lead to higher earnings in the labor market, and it can create the conditions for empowerment by preparing graduates whose contributions to society facilitate human well-being. This focus on empowerment is reflected in Nobel Laureate Amartya Sen's capability approach. Michael Tomlinson points to Sen's approach as an enhancement to economic models, noting that "the capabilities perspective ultimately provides a broader value framing, encompassing students' personal empowerment through enhanced agency and having choices to pursue educational and vocational pathways that they have reason to value."[111]

Compared with more utilitarian approaches that focus on how individual agency facilitates choices that produce economic value, Sen's approach treats agency as directed toward a much broader set of goals.[112] Potential value then results from educational experiences that provide students with opportunities to choose a desired pathway, in life and in work, including by working toward goals that are not economic in nature. Tomlinson says of Sen's conceptual framework:

> The life of a graduate extends well beyond the immediate economic imperative of finding initial employment and may also include other life projects and goals. One of the key principles of the capabilities perspective is that an individual's value, including the values they hold, is in no sense exclusively confined to their economic capacity. . . . Instead, individuals' capabilities are linked to more holistic aspects of their development and selfhood, including their capacity for reason, judgement and enhanced autonomy. Value is only meaningful if it represents the capacity for individuals to act with relative autonomy and fulfil whatever capability sets they have acquired.[113]

Education facilitates a broad range of monetary and nonmonetary outcomes among individuals that are central to human flourishing, including by empowering people to better determine their own paths. Through what we choose to measure and value, public policy has the potential to magnify or diminish education's effects on both individuals and society.

We encourage state policymakers to take a broad view of educational value when assessing the importance of education to their states. We also encourage the architects building accountability systems to focus on how the metrics they choose to assess can lead to improved education outcomes and maximize the value that education brings to individuals, states, and the nation. Balancing monetary and nonmonetary outcomes, personal and public concerns, and accountability for predatory programs alongside continuous program improvement will be crucial to getting education policy right.

111 Tomlinson, "Conceptions of the Value of Higher Education in a Measured Market," 2018.

112 Tomlinson, "Conceptions of the Value of Higher Education in a Measured Market," 2018.

113 Tomlinson, "Conceptions of the Value of Higher Education in a Measured Market," 2018.

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