



Evaluating the Return on Investment in Higher Education

An Assessment of Individual- and State-Level Returns

Kristin Blagg and Erica Blom

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Policymakers increasingly have access to data on how higher education institutions are serving students. From national datasets like the College Scorecard and new measures of student outcomes in the Integrated Postsecondary Education Data System to state-developed datasets that follow students from grade school into college and career, policymakers and researchers now have more metrics than ever on how different types of students and institutions are performing.

The availability of these new data, combined with public discussion of the climbing price of college, have pushed state policymakers to increasingly consider the return on investment (ROI) of higher education. Measuring value in higher education, relative to costs, is important. Students need as much information as possible to make an informed decision about whether and where to go to college. Institutions that are not serving their students well, or are serving students inefficiently relative to other institutions, should be identified. However, measuring the value of college, both at an individual level and at an aggregate state level, is a complex endeavor.

In this brief, we highlight the key components of returns on investments in higher education for both individual students and state taxpayers. Through this approach, we illustrate the complexity and difficulty of thinking about ROI as a single equation, for both individual students and the state. We summarize current research on the returns to education and suggest a new conceptual framework for considering ROI in higher education.

This framework focuses on minimizing risks for students—not just at the point of deciding where to apply and enroll, but across the scope of an individual’s entire college experience—and on directing state policy at increasing the returns for specific subpopulations of institutions or students.

Consideration of aggregate costs and benefits is critical for policymakers, but legislators should also be mindful of the risks individual students face in attempting higher education. By focusing on the specific risks and needs facing different students, as well as by clarifying targeted higher education outcomes, policymakers can enact proposals that help improve outcomes for more students and produce shared benefits for the state's citizens.

An Individual's Return on Investment Evolves over Time

Higher education is often thought of as an individual-level investment, where dedication of time and tuition dollars yields rewards in improved skills and higher earnings. Although higher education pays off for many, the exact returns for an individual are highly uncertain and evolve over time. Factors contributing to an individual's ROI in higher education can be broken down into several (often interrelated) component parts, including the cost of higher education after grants; the length of time in school and the likelihood of certificate or degree completion; the earnings returns from a given level of degree, major, or institution; the student's demographic background; and local economic conditions.

For most, an investment in higher education yields a substantial economic (and personal) return, but this investment may not pan out for some students. By understanding the factors that contribute to lower returns, policymakers can better enact policies that mitigate the risk of a negative outcome for those investing in higher education.

The Cost of College Can Be Difficult to Calculate

Colleges' published tuition and fees (the "sticker price") have grown substantially over the past few decades. But the net price of college (the amount students and their families pay after all grant aid) has grown at a much slower rate (Ma et al. 2017). Although grants and scholarships make college more affordable, the true cost of college can still be difficult for students to calculate.

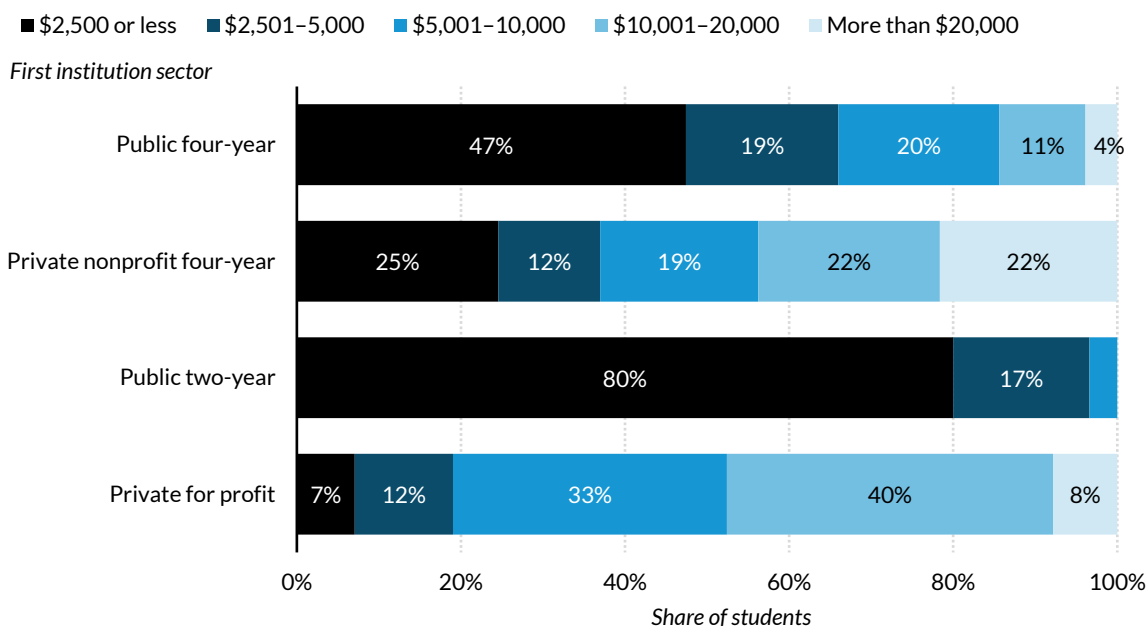
Net prices are generally low for most students at public two-year schools (80 percent of students paid less than \$2,500 in tuition and fees in their freshman year in fall 2015) and at public four-year schools (66 percent paid \$5,000 or less) (figure 1). The price of college is more varied for students at private schools; roughly one-quarter of students at private nonprofit four-year schools paid less than \$2,500, but about 22 percent paid more than \$20,000.

Students and their families can pay for college up front or through loans to be repaid after leaving school. The uncertainty of being able to pay off debt could be a barrier for students as they calculate the payoff for a degree (Burdman 2005; Perna 2008), and an increase in grant aid can increase a student's likelihood of enrolling (Dynarski 2003). Incomplete or difficult-to-find information on the true price of different institutions can increase uncertainty around cost before admission (Scott-Clayton 2013).

FIGURE 1

Amount Owed in Tuition and Fees after All Grant Aid in First Enrollment Year

For students who started college in the 2015–16 school year



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Source: Urban Institute analysis of National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS) PowerStats, 2016, <https://nces.ed.gov/datalab>.

Even with a financial aid package in hand, students can make errors in estimating potential costs. Financial aid award letters can obscure the amount students will actually have to pay,¹ and students do not always make fiscally optimal choices when selecting among financial aid packages (Avery and Hoxby 2004). Students from high-income families are more protected from the potential risks of college costs. These students are often insulated from the need to take on student debt (Houle 2013) and are more likely to make economically rational decisions when weighing financial aid packages against the resources and opportunities available at a given school (Avery and Hoxby 2004).

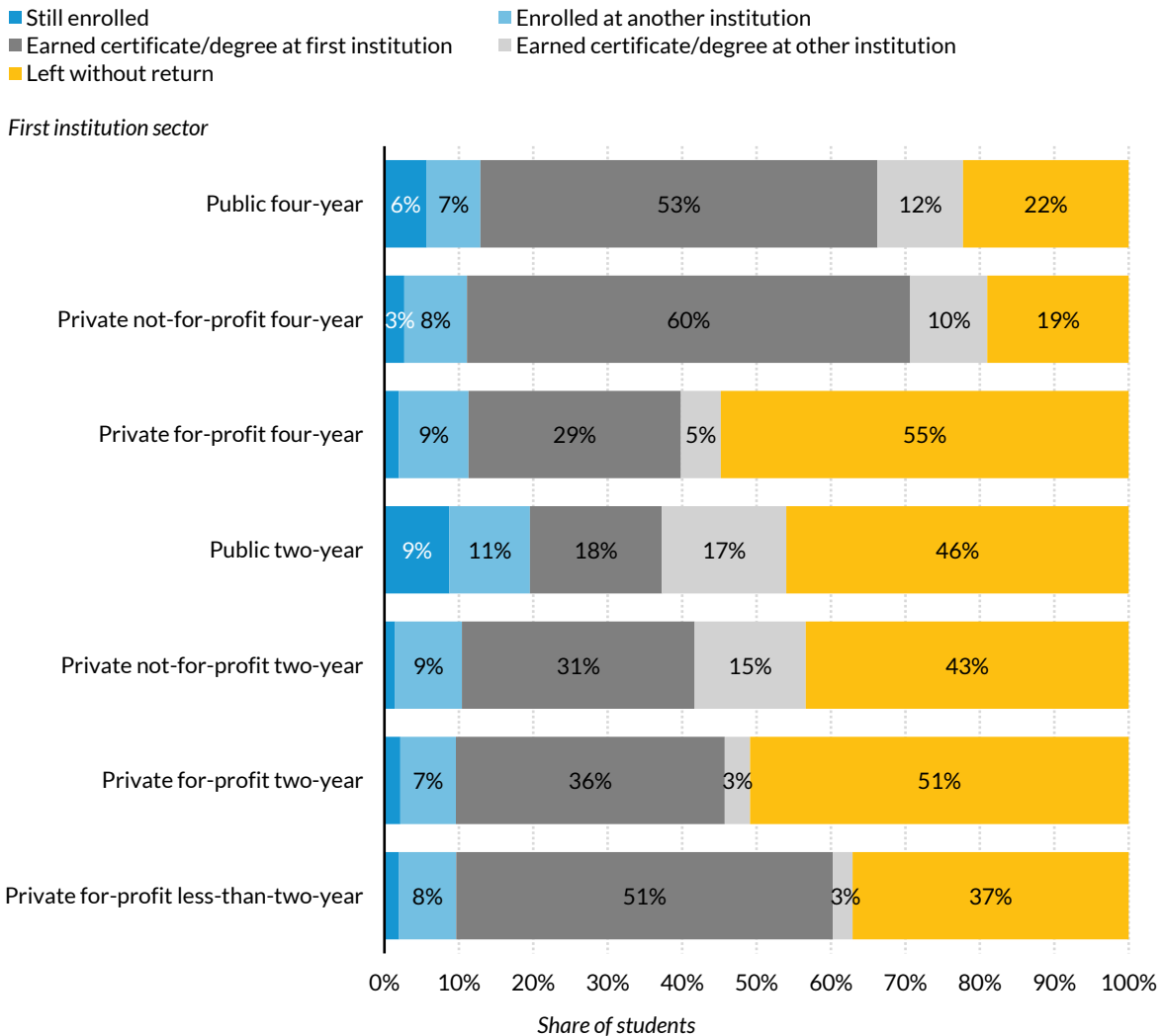
Students May Underestimate the Time to a Degree and Their Likelihood of Earning a Degree

Many students take longer than the prescribed two or four years to earn an associate’s or bachelor’s degree, and some may never obtain a higher education credential. In some sectors, more than half of students who enrolled in the 2003–04 school year left school without completing a credential, six years after first enrolling (figure 2). Completion rates are lowest at for-profit schools, where roughly half of beginning postsecondary students left school without a credential. Completion rates are highest at public and private nonprofit four-year schools, where roughly 20 percent left school without a degree. Notably, 20 percent of students who first enrolled at public two-year schools are still enrolled six years later, whether at their first institution or at another institution.

FIGURE 2

Attainment and Persistence among Beginning Postsecondary Students

Six years after starting at first institution, for those who started in the 2003–04 school year



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Source: Urban Institute analysis of National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS), 2004/2009 Beginning Postsecondary Students Longitudinal Study (BPS 04/09), PowerStats, <https://nces.ed.gov/datalab>.

Each additional year in school increases a student’s total cost of attendance and reduces the number of years the student can work in a job that requires a credential. If a student does not complete, she may not realize the same earnings as a student who received the same amount of training and has a degree.

Students prolong or stop out of higher education for many reasons. Remedial education classes, often required of students who do not pass placement tests, can lengthen the time a student is required to spend in school and could induce stopout (Bailey, Wook Jeong, and Cho 2010; Melguizo, Hagedorn,

and Cypers 2008). Although a student's ability and preparation play a substantial role, resources on campus, such as the student-faculty ratio or the availability of required classes, also contribute to the likelihood of completion (Bound, Lovenheim, and Turner 2010; Turner 2004).

Although earning more college credits is associated with higher earnings, the risk of not completing college is high (Belfield and Bailey 2017). Students who drop out of school with a year or less left could earn 13 percent less than students who complete the degree (Cadena and Keys 2015). Moreover, students taking out loans to pay for school may magnify the risk of noncompletion, finding themselves potentially worse off than if they had not attended (Athreya and Eberly 2016).

The riskiness of college attendance must be balanced against the substantial lifetime earnings boost a postsecondary degree can provide, particularly for low- or moderate-ability students. Some researchers point to the "option value" of college—the value to a student of being able to enroll and subsequently stay or leave after learning more about her personal aptitude for college work (Bilkic, Gries, and Pilichowski 2012; Heckman, Lochner, and Todd 2008; Stange 2012). If the risk of going to college is relatively low, then more students may experiment with going to college. Some of these students will learn that they are not able to commit to completing college, but others, who might have otherwise not enrolled, may realize substantial gains by learning that they can attain a degree.

Earnings Vary by Institution, Degree Level, and Major

Many prospective students know that different degrees can produce different earnings returns; a bachelor's degree recipient will typically have higher earnings than an associate's degree recipient, and a Harvard graduate will likely earn more than a graduate from a nonselective four-year school. However, the relationship between a student's selected degree level, major, and institution can be complex, and some degree-major scenarios may not pay off until later in life, or ever (Barrow and Malamud 2015; Webber 2016).

The majors students select vary by type of institution (table 1). For example, students who first enroll in private nonprofit two-year schools are more likely than students in other types of schools to enroll in health-related majors, while those in four-year public or private nonprofit schools are more likely to enroll in social or behavioral science majors. Across all sectors, less than 15 percent of students report that their last major was in math, physical science, computer science, or engineering.

TABLE 1

Last Enrolled Major as of 2009

For students who started in the 2003–04 school year

	Undeclared /nondegree	Social/ behavioral sciences	Humanities	Life sciences	Math, physical science, computer science, engineering	Education	Business/ management	Health	Vocational/ technical/ other
Public four-year	8%	13%	12%	7%	11%	8%	17%	9%	14%
Private not-for-profit four-year	6%	15%	16%	9%	10%	7%	18%	7%	12%
Private for-profit four-year	18%	2%	14%	-	14%	-	18%	17%	16%
Public two-year	25%	6%	10%	2%	7%	6%	14%	15%	14%
Private not-for-profit two-year	21%	6%	13%	1%	8%	3%	13%	25%	8%
Private for-profit two-year	19%	3%	9%	3%	11%	2%	14%	15%	24%
Private for-profit less-than-two-year	27%	5%	7%	0%	9%	2%	8%	24%	18%

Source: Urban Institute analysis of National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS), 2004/2009 Beginning Postsecondary Students Longitudinal Study (BPS 04/09), PowerStats, <https://nces.ed.gov/datalab>.

The institution and major a student selects can be critical for the trajectory of her future earnings. When students attend a less-selective school than they are academically eligible for, they could lose out on the earnings benefit of a more elite school (Bowen, Chingos, and McPherson 2009; Brewer, Eide, and Ehrenberg 1999; Zimmerman 2014). Some majors, such as engineering, computer science, finance, and nursing, have high projected lifetime earnings, and others, such as English literature, psychology, and social work, have lower projected earnings (Carnevale, Strohl, and Melton 2014; Hershbein and Kearney 2014).

Just as with completion, however, the selection of a given major is intertwined with a student's own ability and interests (Altonji, Blom, and Meghir 2012; Arcidiacono 2004). It is difficult to disentangle the ability to complete a given course of study and the subsequent earning returns on that major (Arias, Hallock, and Sosa-Escudero 2001). Policymakers have produced multiple tools to provide prospective students with information on differences in earnings potential by institution (e.g., the College Scorecard) as well as by institution and major (e.g., "Launch my Career" state tools),² but these information strategies may be most likely to reach well-resourced students (Blagg et al. 2017; Hurwitz and Smith 2017).

Earnings Vary by Demographics and Local Economic Conditions

Even when they enroll in the same institution, degree level, and major, students from different demographic backgrounds may experience different earnings returns. Female students, on average, see lower returns than their male peers (Beblavy, Lehouelleur, and Maselli 2013; Saleh et al. 2017), and students who earn a degree at a later age also tend to earn less than similarly educated younger peers (Hout 2012; Jepsen and Montgomery 2012). Returns also vary by race; even after multiple controls for education, white and Hispanic male graduates tend to earn more than black or Asian male graduates (Weinberger 2002).

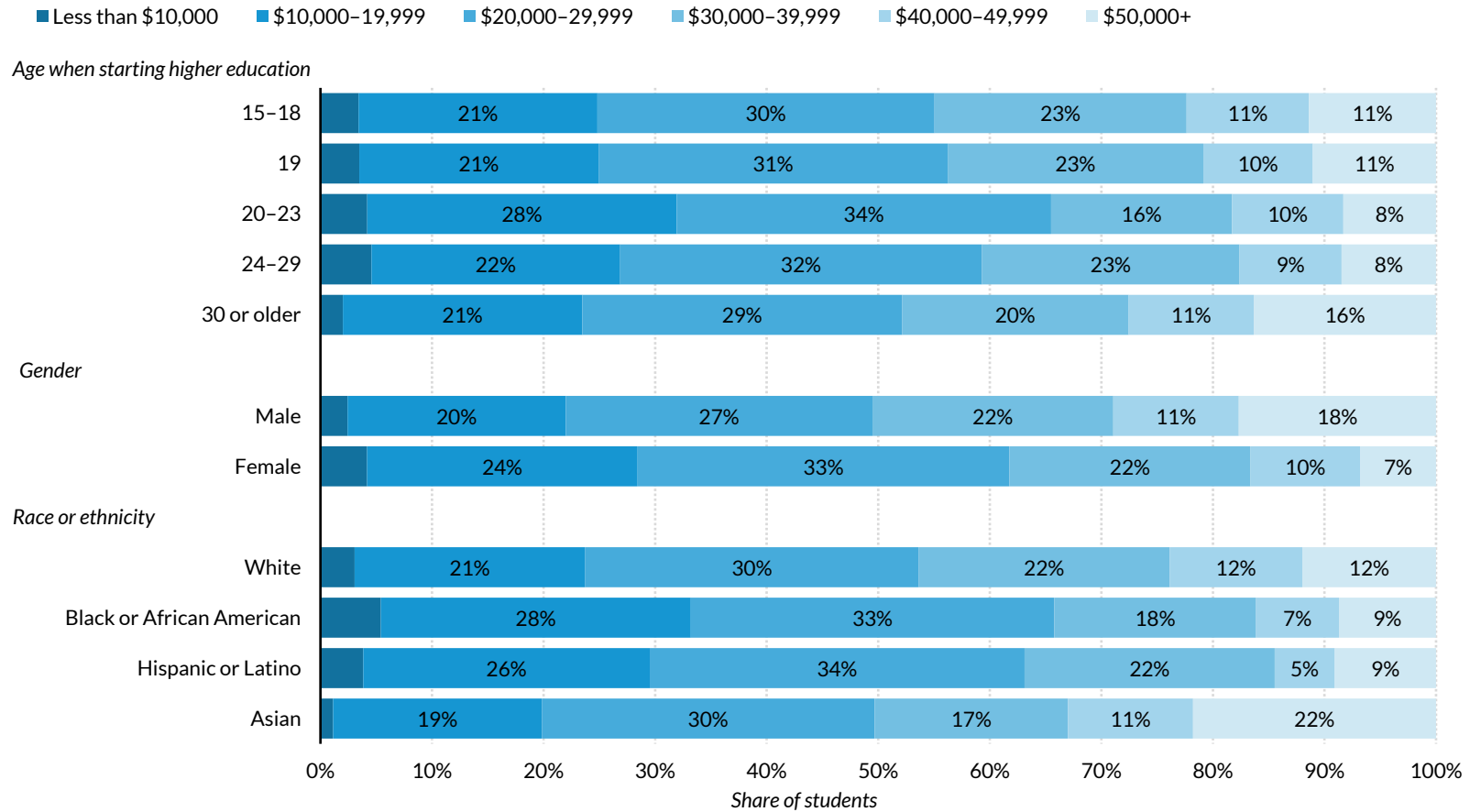
The demographic differences in earnings returns can reflect a student's preferences for work in different sectors or on different schedules, but they can also reflect differences in a student's access to job opportunities (e.g., the strength of connections to employers or the discrimination of employers against members of certain demographic groups). Students may also see different returns based on the year they leave school for the labor market. Students who graduate into a recession, for example, see persistent wage losses relative to peers who graduate into a stronger labor market (Kahn 2010).

Earnings differentials by student demographics are evident when we look at overall earnings six years after students first enter higher education (figure 3). These earnings reflect the institutions and majors students select into based on their skills (and completion of the credential), as well as personal preferences and potential (dis)advantages in the labor market. Eighteen percent of employed male students report making more than \$50,000 in personal income six years after entering higher education, and just 7 percent of employed female students report making as much. Without any controls for personal background or institution, employed white and Asian students are likely to earn more six years after entering higher education than black and Hispanic students.

FIGURE 3

Income Six Years after Enrollment

For students who started in the 2003-04 school year



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Source: Urban Institute analysis of National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS), 2004/2009 Beginning Postsecondary Students Longitudinal Study (BPS 04/09), PowerStats, <https://nces.ed.gov/surveys/bps/whatsnew.asp>.

Students Must Adjust Their Expected Return on Investment in Education

At every point in their postsecondary careers—from the choice of where to apply to college to the point at which they leave school and enter the workplace—students may update their estimates of the expected payoff for their investment in higher education (figure 1). As they make these decisions, students can act to increase the likelihood of a positive outcome or mitigate the risks of a poor outcome. For example, students who expect a higher income after school (e.g., after getting into a highly selective school) may choose to take out more student loans than those who expect a lower income. A student who feels academically unprepared after enrolling may opt to leave and enter the workforce instead of investing more time and money into higher education.

TABLE 2

Key Decision Points Affecting Individual ROI on Educational Investment

College application	College selection	Program selection	Continued enrollment	Employment decision
Whether and where to apply, based on student’s perception of potential earnings gains, cost of degree, and personal preferences and abilities	Whether and where to attend, based on acceptance and updated costs of degree with financial aid offers in hand	Which program of study to pursue, based on ability, interest, and potential earnings	Whether to continue enrollment in school, based on updated information on academic performance and costs of college	Whether and where to seek employment after leaving school, based on credentials, personal preferences, local economic conditions, and other factors

Students never have perfect information about the true return they will earn on their investment in higher education. Importantly, low-income or first-generation students may be more likely to make incorrect assessments, potentially over- or underestimating the value of their educational investment.

Social Returns on Investment Are Not Always Clear

In the following section, we turn to the calculation of the return on investment³ in public higher education from the state’s perspective.⁴ Fundamentally, the calculation is the same: the ROI is benefits generated minus costs incurred. However, many implications of increased education at a larger scale are ambiguous—it is not always clear, from the state’s perspective, what counts as a benefit or a cost. Below, we provide an overview of the benefits and costs state policymakers may consider in determining whether and how to make further investments in higher education.

On the benefits side, there are tax revenues gained and social welfare costs averted that stem directly from the individuals’ returns; however, there are also “spillover” effects that individuals do not incorporate into their decisionmaking.

While students consider net price and opportunity costs, state policymakers and college administrators allocate higher education funding across institutions, programs, students, and spending

categories. Policymakers and administrators interested in improving the educational attainment of a state's residents need to know not only *whether* to increase investments in postsecondary institutions, but *how*: which investments are most likely to change student behaviors and outcomes in the most productive ways?

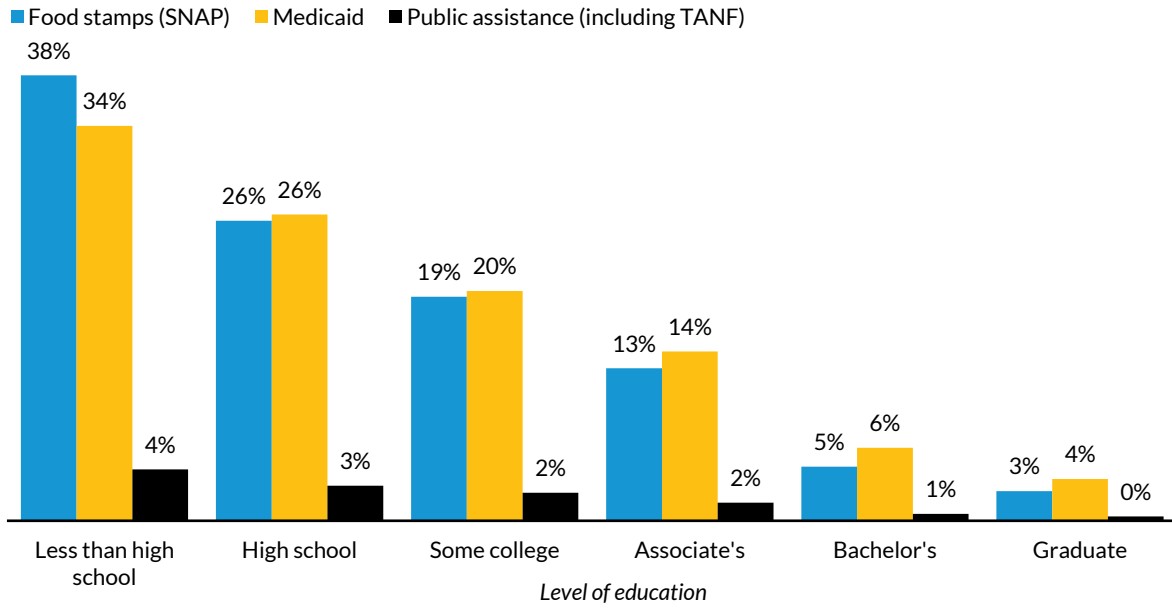
The overview below cannot address all the complexities of the social costs and returns to higher education, especially as most research in this area has focused on broad questions related to increased years of education rather than on specific programs or subpopulations. Nonetheless, we highlight issues for states to grapple with as they consider increasing—or redirecting—their limited higher education budgets.

Higher Levels of Education Lead to Increased Tax Revenue and Decreased Reliance on Social Welfare Programs

The most direct benefit of increased earnings from increased education is increased tax revenues. State income tax rates vary from 0 percent in states like Texas and Florida to over 13 percent for the highest marginal tax bracket in California; most states levy sales tax as well.⁵ The College Board (Ma, Pender, and Welch 2016) has estimated that 2015 median annual taxes (federal, state, and local) range from \$5,200 for individuals with less than a high school diploma to \$10,100 for associate's degree holders, \$14,500 for bachelor's degree holders, and \$28,900 for professional degree recipients. RAND (Carroll and Erkut 2009) and Trostel (2008) provide similar estimates. Though most work in this area considers broad educational attainment such as bachelor's degrees or associate's degrees, it would not be overly difficult for policymakers to calculate returns to particular programs or for particular subgroups based on the returns to these programs.

State efforts to improve retention, completion, or attainment of more productive credentials may also contribute to state coffers by decreasing the need for social welfare programs. Although this is more complicated to calculate than tax receipts, partly because the federal government foots much of the bill, the evidence is clear that the higher an individual's level of education, the less likely she is to rely on government assistance. Reliance on food stamps, Medicaid, or public assistance, as well as the probability of unemployment, all decline in lockstep with level of education (figures 4 and 5). In particular, Trostel (2008) estimates total savings to state and local governments to be roughly \$34,773 for each individual who completes a college degree instead of stopping after high school, in addition to the tax benefits described above.

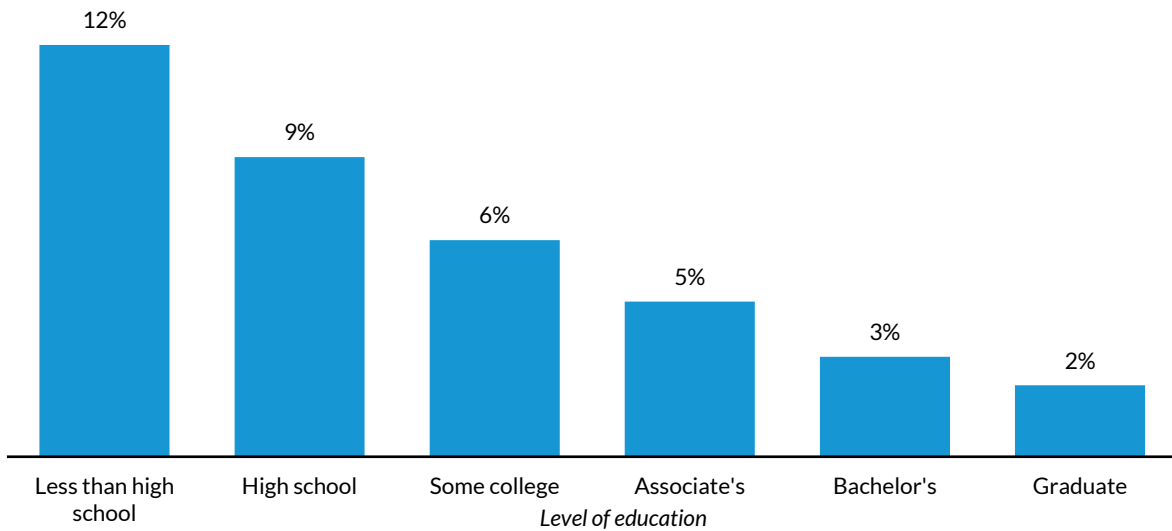
FIGURE 4
Receipt of Select Governmental Assistance by Level of Education
 Ages 25–34



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Source: US Census Bureau, American Community Survey, 2016, <https://www.census.gov/programs-surveys/acs/>.

FIGURE 5
Unemployment by Level of Education
 Ages 25–34



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Source: US Census Bureau, American Community Survey, 2016, <https://www.census.gov/programs-surveys/acs/>.

Increased Education Leads to Many Intangible Social Benefits

Many states' educational attainment goals (HCM Strategists 2016) are premised on the idea that overall increases in education “contribut[e] to the expansion and diversification of the state’s economy through research and innovation”⁶ and encourage students to be more civic minded (THECB 2015). Higher education can convey a number of social benefits, and some may lead to indirect tangible benefits.

Higher levels of education lead to lower levels of crime, either directly (Lochner and Moretti 2003) or via increased wages (Machin and Meghir 2004). This directly reduces spending on incarceration, as the RAND Corporation calculated (Carroll and Erkut 2009). However, it may also lead to lower expenditures on policing, as well as to intangible benefits to society as a whole.

Health and education are also related, and though there is some concern about reverse causality, the preponderance of evidence indicates that more education does improve health outcomes (Cutler and Lleras-Muney 2006; Ross and Wu 1995). From the standpoint of state finances, these health benefits confer both advantages and disadvantages. If individuals are healthy enough to work past typical retirement age, the state may benefit from additional tax revenue. But healthier individuals also live longer and thus require more Medicare and Social Security spending (although both of these are federal, not state, programs), and evidence indicates that wealthier individuals spend more on health care (Foster 2016).

One of the more challenging questions is whether and to what extent there are productivity spillovers, or externalities, from more educated workers to the rest of society. Basic models of economic growth assume that increased education leads to faster growth through technological innovation. One estimate indicates that a 1 percent increase in the supply of college graduates raises the wages of high school dropouts 1.9 percent (and of other groups by slightly less) (Moretti 2004). Others have found smaller spillover effects on wages (Acemoglu and Angrist 2000). Moody’s estimates that increasing college completion rates by half for colleges with completion rates below 50 percent, and decreasing dropout by half for colleges with completion rates above 50 percent, could, by 2046, increase real GDP by 2.5 percent relative to the baseline, total employment by 0.5 percent, and median household income by 3.5 percent (Koropecyj, Lafakis, and Ozimek 2017). Of course, individual state returns may be higher or lower than this, especially if graduates tend to leave or flock to the state.

Investing in quality education for one generation has long-term positive effects for subsequent generations. For example, there is evidence that children with better-educated parents (especially mothers) have better long-term outcomes (Currie and Moretti 2003). Better-educated teachers tend to bring about better student performance outcomes—however, it is subject-specific education that matters (Ball, Thames, and Phelps 2008), not the acquisition of any master’s degree (Hanushek and Rivkin 2006).

Even with convincing evidence that additional years of education can lead to large positive externalities, research sheds little light on which degrees are the most useful in achieving these. It is

notoriously difficult to predict which sectors will expand in the near or middle future. Moreover, even if a particular sector appears to be growing rapidly, encouraging students to flock to that sector would likely depress wages eventually.⁷

State policymakers might also consider the distributional consequences of increased educational attainment. Many economists treat one additional year of education as comparable to another, but policymakers may consider whether they would rather increase the number of individuals with one-year certificates or the number of individuals with master's degrees.

Although we can estimate the general effect of additional investments in higher education, precisely calculating the aggregate “benefits to education” for a state is close to impossible. Such a calculation relies on several assumptions, as well as the personal values of policymakers (who, for example, may value reduced crime over improved health outcomes).

Costs to States Depend on a Variety of Factors

Public higher education is funded from a variety of sources, including state and local appropriations, federal aid in the form of Pell grants and subsidized loans, tuition payments, endowments, and other sources. Much ink has been spilled over the rising costs of higher education to the individual, as described above, increasing pressure on states to find solutions. States such as New York are considering or commencing “free college” programs. Though these programs are popular with many, a state should consider both *how much* is spent and *how* it is spent to maximize returns on investments in higher education.

Four-year institutions are costlier to the state than two-year or less-than-two-year institutions; state and local appropriations were roughly \$7,130 per full-time equivalent student at public four-year institutions in 2014–15, while the same figure for two-year institutions was only \$5,480 (Baum et al. 2018). However, lower completion rates at community colleges diminish, if not eliminate, the cost per degree across sectors.

Certain programs are costlier than others. Science programs with expensive lab equipment and small classes tend to cost more than, for example, business programs that may rely more heavily on large lecture-style classes. Engineering degrees cost the State University System of Florida more than \$60,000 (of which tuition covers only a fraction, leaving the remainder to the taxpayer), and cheaper degrees, like business, cost about half that (Altonji and Zimmerman 2017). Since most colleges do not charge differential tuition by major, encouraging more students to choose engineering, for example, may benefit those students but could be costly to the state (depending, of course, on the graduates' productivity).

Furthermore, costs are not uniform across all students pursuing a particular degree. Costs and benefits depend on a student's intrinsic aptitude and background preparation. For example, it may be costlier to educate less-prepared students if they require more resources (e.g., tutoring, guidance), need to retake classes to graduate, or simply require more time. More generally, though adding one

additional student may be close to costless, adding many more may require hiring additional faculty, building additional buildings, and so forth.

From a more practical perspective, state policymakers and higher education leaders must consider whether they should focus on admitting more students (and to what types of institutions), increasing transfer rates, reducing time to degree, or increasing completions. These different policy levers require different approaches and different amounts of funding, so the state should consider along which margins it gets the most bang for its buck. For example, CUNY ASAP—a program providing intensive support to students in associate programs at the City University of New York—incur additional costs of about \$5,400 per student per year, but lowers the overall costs of producing each graduate by reducing time to degree and increasing graduation and transfer rates (Scrivener et al. 2015). Many researchers have shown large effects on completion and other measures using low-cost nudges.⁸ However, each intervention needs to be independently assessed, as not all have positive payoffs. For example, although a comprehensive case management approach combined with emergency financial assistance has boosted completion rates for some community college students, emergency financial assistance on its own has not (Evans et al. 2017).

Moreover, policymakers face the decision of not just which (types of) colleges and programs to devote funds to, but how to allocate them across different functions of the college: administration, facilities, instruction, support services, and so on. Much has been written about the real and perceived increases in college costs, attributing these increases to administrative bloat or overexpenditure on unnecessary facilities such as lazy rivers. At the same time, many institutions have been cutting costs by replacing tenure-track faculty with adjunct professors. Recent work indicates that, for certain types of institutions, expenditures on student services could lead to better outcomes than instructional spending, on the margin (Webber and Ehrenberg 2010). Other work suggests that increasing spending can be more effective than decreasing tuition (Deming and Walters 2017). Calculating an accurate ROI will depend on understanding the relative productive value of each of these investments; all dollars are not necessarily equal.

Just as an individual faces an opportunity cost of pursuing more education, so does the state. The state faces trade-offs between many possible expenditures, including some that may seem more immediately pressing than higher education, which has front-loaded costs but benefits that may not accrue for years, or even decades. For example, Orszag and Kane (2003) argue that the expansion of Medicaid between 1988 and 1998 explains about 80 percent of the decline in state spending on higher education during that same period (see also Webber 2018).

Policymakers Can Go Beyond the Metrics

Policymakers who want to decide how to best invest public dollars into higher education to yield the highest return have a wide range of data to draw upon. National datasets, such as the Integrated Postsecondary Education Data System and the College Scorecard, provide data on institutional performance for measures such as persistence, completion, and earnings after enrollment. In addition,

many states have built, or are in the process of building, longitudinal data systems that follow students from K–12 education into college and the workforce. But calculating and increasing the overall ROI in higher education, whether for an individual or at a state level, is more complex than just looking at raw data or tinkering with the inputs and outputs of an equation.

Improving the return to higher education might be better framed as minimizing risks for individual students and assessing larger trade-offs on spending for different programs and subpopulations. Rather than focus on an all-encompassing equation or broad summative outcomes, policymakers could benefit from a framework for higher education policymaking grounded in data but focused on risk mitigation, targeted outcomes, and affected student subpopulations.

Policymakers Can Work to Minimize Risk for Students

It is impossible for a student to make perfectly rational decisions about her higher education. Among other concerns, she cannot perfectly estimate her future preferences, and she cannot fully know the economic circumstances she will enter into once she leaves school. Policymakers can help students by developing interventions to reduce uncertainty in higher education, focusing on five key decision points: (1) college application, (2) college selection, (3) program selection, (4) continued enrollment, and (5) employment.

Many recent policy changes have acted to minimize risk, particularly for potential students selecting among different colleges. Investments in college counselors, information from net price calculators and the College Scorecard, denial of federal aid for poor-performing institutions, and pushes for a simplified financial aid process are designed to help mitigate the risk associated with a poor college application and selection. However, students have fewer policy supports for selecting a major once they enroll, deciding whether to remain enrolled, and finding employment after enrolling. Institution- or system-level programs, such as CUNY ASAP and Georgia State University's Student Success Initiatives, are aimed at improving student retention and reducing time to degree.

Policymakers Can Identify Specific Outcomes and Subpopulations for Policy Implementation

Investment in higher education confers broad and far-reaching aggregate benefits. These benefits could include increased revenue from higher incomes, lower use of social welfare programs, reductions in crime, and others. Aside from these tangible returns, investment in higher education could also yield a more engaged and equitable civil society. Sixty percent of Americans believe that the government should fund higher education because it is good for society, relative to the alternative of considering education a personal benefit for students (Fishman, Ezeugo, and Nguyen 2018).

When focusing on new policies or funding for higher education, lawmakers should identify the outcomes they hope to change and the subpopulations of students who may be most affected. For example, an intervention to increase postenrollment earnings might focus on increasing the number of students who major in STEM fields. However, this intervention may confer more benefits on students

who enroll in four-year schools, where these majors are more likely to be offered. Similarly, an intervention aimed at improving college “match” by ability is more likely to benefit students who enter college directly from high school (and who have college entrance exam scores and the benefit of school guidance), relative to those who enter college after time in the workforce. To boost education in the hopes of reducing crime rates, policymakers might focus on providing higher education to individuals who are currently in prison (e.g., the Pell in prisons pilot) or those who live in high-crime communities.

Policymakers Might Think beyond Costs and Benefits

As policymakers and the public gain access to more and more data on the performance of higher education institutions, it becomes tempting to legislate based on these outcomes. Thirty-two states now distribute some higher education funding based on performance factors, such as completions.⁹ The results of these performance-based funding initiatives are essentially null, perhaps indicating a need for additional first principles for using data in higher education legislation (Bell, Fryar, and Hillman 2018). By synthesizing much of the research on how the value of education is realized at the individual and societal levels, we demonstrate that policymakers may need a more granular understanding of how their policies affect higher education. This granularity can take the shape of considering individual student’s paths (thus focusing on providing information and other risk mitigation) or improving specific outcomes for specific student populations.

Notes

¹ Stephen Burd, Rachel Fishman, Laura Keane, Julie Habbert, Ben Barrett, Kim Dancy, Sophie Nguyen, and Brendan Williams, “Decoding the Cost of College: The Case for Transparent Financial Aid Award Letters,” *New America* (blog), New America, June 5, 2018, <https://www.newamerica.org/education-policy/edcentral/decoding-cost-college/>.

² US Chamber of Commerce Foundation, “Launch My Career,” <https://www.uschamberfoundation.org/center-education-and-workforce/launch-my-career>.

³ We use the term “return on investment” loosely in this section. Rather than viewing it as an annual return per dollar spend (analogous to investment returns), we instead discuss the net increase in lifetimes (net of additional costs incurred). This framework makes more sense in the educational context because each year of additional “investment” reduces the number of years one can reap returns. (This, too, is an oversimplification, as more educated individuals tend to retire at older ages, but suffices for now.) For the bulk of this discussion the distinction between the two approaches is unimportant.

⁴ Though our focus is chiefly on states, as they are predominantly responsible for higher education policy, we comment briefly on the federal government’s perspective.

⁵ Morgan Scarborough, “State Individual Income Tax Rates and Brackets for 2018,” Tax Foundation, March 5, 2018, <https://taxfoundation.org/state-individual-income-tax-rates-brackets-2018/>.

⁶ State of Connecticut, Substitute for Raised House Bill No. 7007, Public Act No. 15-75, 2017.

⁷ Researchers call this the “cobweb model” (Freeman 1976).

⁸ Ben Wildavsky, “Nudge Nation: A New Way to Prod Students into and through College,” *EdSector* (blog), American Institutes for Research, September 10, 2013, <https://www.air.org/edsector-archives/publications/nudge-nation-new-way-prod-students-and-through-college>.

⁹ “Performance-Based Funding for Higher Education,” National Conference of State Legislatures, July 31, 2015, <http://www.ncsl.org/research/education/performance-funding.aspx>.

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About the Authors



Kristin Blagg is a research associate in the Education Policy Program at the Urban Institute. Her research focuses on K–12 and postsecondary education. Blagg has conducted studies on student transportation and school choice, student loans, and the role of information in higher education.



Erica Blom is a research associate in the Education Policy Program at the Urban Institute, where she studies higher education policy. She earned a doctoral degree in economics from Yale University, where her research focused on students' choices in college major. At Urban, she has contributed to projects on a variety of topics, including high school quality measures, teacher diversity, and student loans.

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