Trends in Net College Tuition and Financial Aid, 1990–2020

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Key Points

- While the sticker price of college rose $13,717 in real terms between 1989–90 and 2019–20, the net tuition students pay after financial aid rose just $4,526.
- However, the net tuition received by institutions rose by a greater amount ($8,128). This is because institutions captured increases in external financial aid, such as Pell Grants, instead of passing those increases through to students.
- External financial aid for the average student tripled in real terms between 1990 and 2020, from $1,726 to $5,328.
- Had the net tuition institutions charge before external aid remained at 1990 levels (adjusting for inflation), students at four-year public colleges would have free tuition today, thanks to rises in external financial aid.

College costs are out of control—or so the narrative goes. In recent years, a counternarrative has emerged that argues, correctly, that the meteoric rise in the sticker price of college is misleading. Net college tuition, or tuition after financial aid is applied, has risen far less quickly than sticker price tuition and has even fallen in recent years.[1]

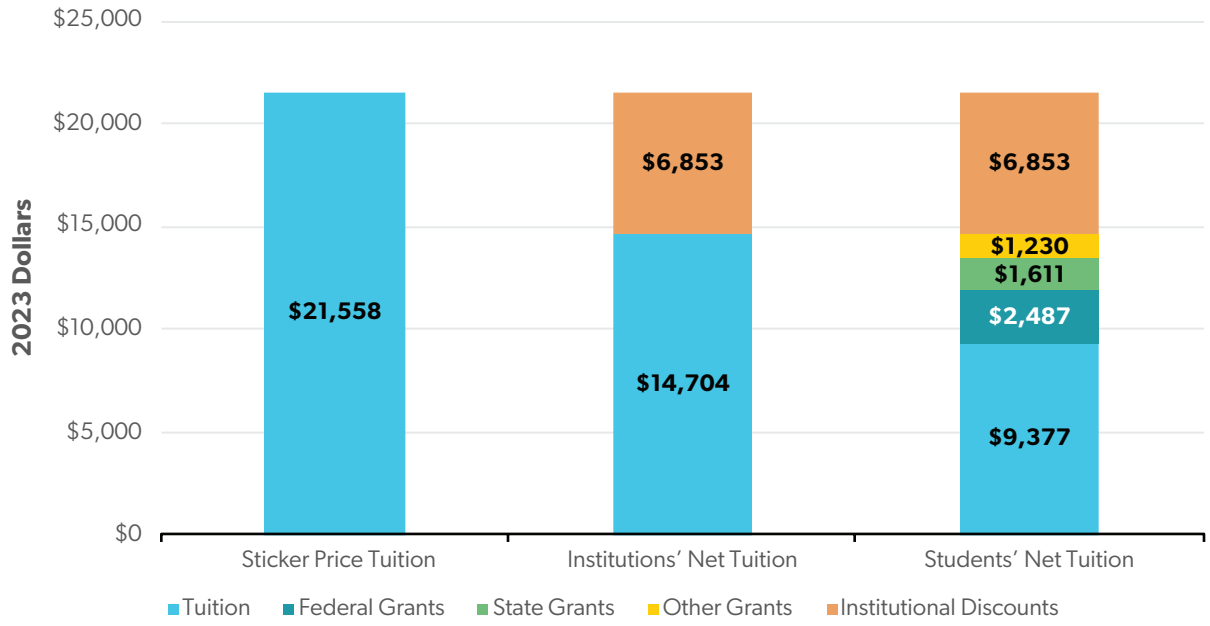
However, net tuition's relative stability is largely not due to universities holding their own prices down. Rather, financial aid from external sources, such as the federal government's Pell Grant, has increased dramatically over the past three decades. This has kept net prices for students down—even as colleges and universities collect more tuition revenue.

This report makes a distinction between two measures of net tuition. *Students' net tuition* is the amount of tuition and required fees that students pay out of their own wallets, after all grants and scholarships are applied. By contrast, *institutions' net tuition* is the amount of tuition revenue that institutions receive for enrolling a student. It includes not just the tuition that students pay out of pocket but also financial aid received from external sources like governments and employers.

Figure 1 illustrates the distinction between sticker price tuition, institutions' net tuition, and students' net tuition. In the 2019–20 academic year, average sticker price tuition for full-time, full-year students in undergraduate degree programs was $21,558 per year. But the average institution of higher education also provided each student $6,853 in financial aid from institutional sources, meaning it collected $14,704 in net tuition revenue per student. This figure is the institutions' net tuition.

But students did not pay all that by themselves. Of that $14,704 in institutions' net tuition, the average financial aid from external sources like federal and

Figure 1. Three Measures of College Tuition



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: Figures are for the 2019–20 academic year. The sample includes full-time, full-year students in undergraduate degree programs at all colleges and universities.

state governments totaled $5,328. This left $9,377 to be paid by students themselves. This figure—a little under half the sticker price, on average—is the students' net tuition.

External financial aid is equal to the difference between students' net tuition and institutions' net tuition. This includes grants from federal sources, mostly the $30 billion Pell Grant, which targets low- and middle-income students.[2] But state financial aid programs, which total $14 billion across the 50 states, also play a major role.[3] Grants from other sources include military and veterans' benefits, employer-provided tuition assistance, and scholarships from private, noninstitutional sources.

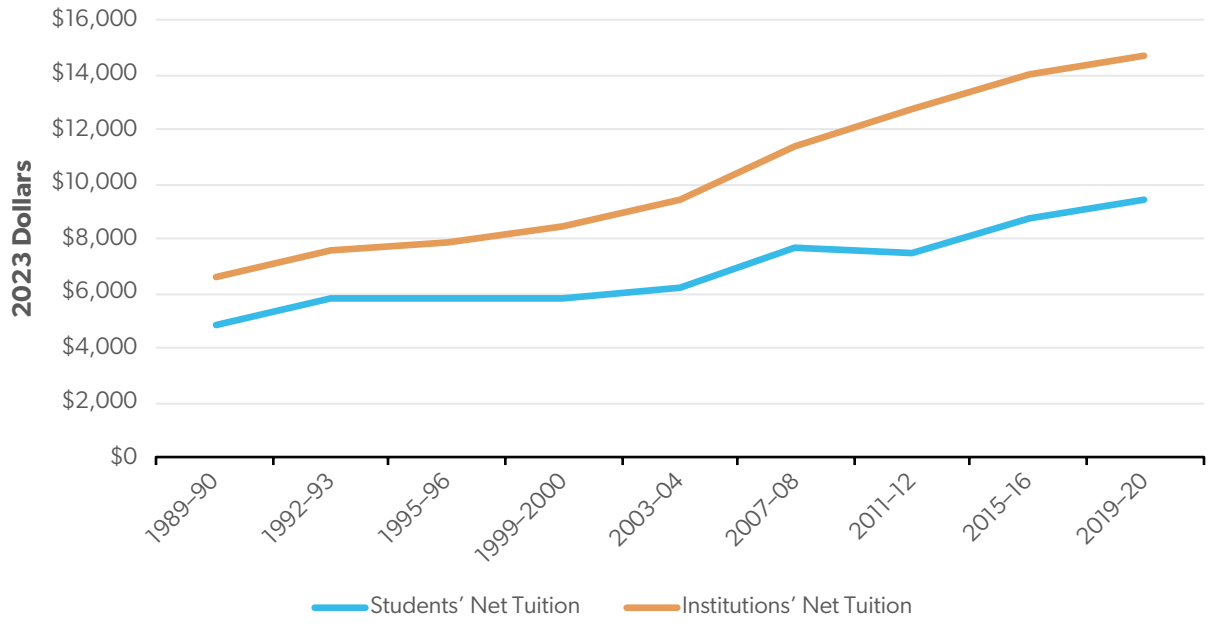
Most analyses of net tuition treat all financial aid similarly. But the distinction between institutional aid and external aid matters. Institutional aid is money that the institution pays to itself. An institution that charges a sticker price of $15,000 but provides $5,000 in institutional aid per student receives the same amount of net revenue as an institution that charges a sticker price of $10,000 but provides no institutional aid.

External aid, however, is money that changes hands. Consider a student attending a school that charges $7,000 after institutional aid but who receives no external aid. This student pays the same net tuition as a student attending a school that charges $10,000 after institutional aid but who receives a $3,000 financial aid award from the state government. Even though the students are paying the same net price, taxpayers are spending $3,000 more to educate the second student, and the institution is receiving $3,000 more in revenue.

From a public policy perspective, it matters how much money society (students, governments, and third parties combined) is paying in tuition. This report leverages the National Postsecondary Student Aid Study (NPSAS), a project of the National Center for Education Statistics (NCES), to investigate this question.

NPSAS is based on a stratified random sample of current college students in a given academic year. The survey uses institutions' administrative records and government databases to provide detailed breakdowns of net prices and financial aid awards. Unlike other data sources, this allows us to create customized measures of

Figure 2. Students' vs. Institutions' Net Tuition, 1990–2020



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs at all colleges and universities.

college costs, such as institutions' net tuition. The main downside to NPSAS is that NCES does not field the survey every year. The most recent edition of NPSAS with publicly available data was conducted in the 2019–20 academic year. NCES conducted another survey in 2023–24, but the data are not yet available.[4]

Using NPSAS data, I find that external financial aid increased significantly between the 1989–90 and 2019–20 academic years (hereafter 1990 and 2020, respectively). However, institutions also raised their net prices. Higher external aid means that students' net tuition did not increase as quickly as institutions' net tuition. However, I also find that if colleges had frozen institutions' net tuition at its real level in 1990, larger external aid packages would have driven students' net tuition to zero for the average individual attending a public four-year college.

Financial Aid Has Increased Markedly

In 1990, the average student attended an institution charging a sticker price of $7,841. By 2020, the sticker price had increased to $21,558 in real terms.[5] This represents an increase of $13,717, or 175 percent, over 30 years. (Unless otherwise noted, all dollar amounts in this report are given in 2023 dollars.)

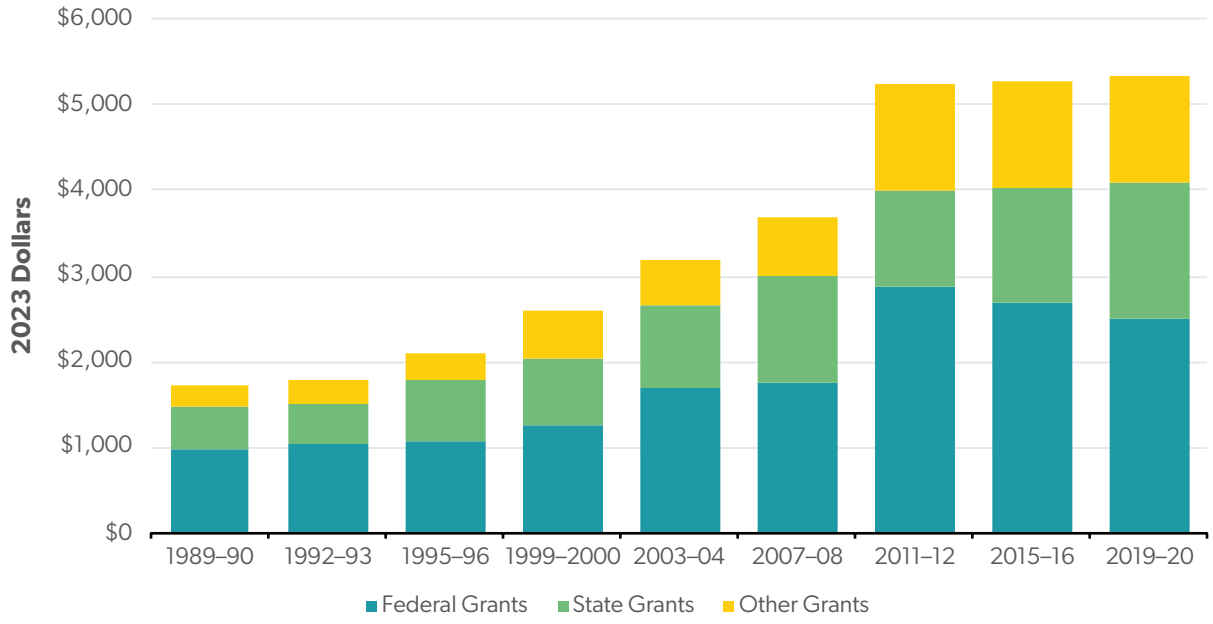
At the same time, students received larger discounts on the sticker price. Institutional aid—which we ought to think of as an accounting fiction, as it is money the school pays to itself—increased fivefold. Institutions' net price thus increased "only" $8,128, or 124 percent, from $6,577 in 1990 to $14,704 in 2020.

But students have directly borne only a fraction of that increase in institutions' net price, thanks to rises in financial aid from external sources. Figure 2 compares students' net tuition to institutions' net tuition for the average student over time. While institutions' net tuition rose $8,128, students' net tuition increased "only" $4,526 (93 percent), from $4,851 in 1990 to $9,377 in 2020.

Students thus bore only around half (56 percent) of the increase in institutions' net tuition between 1990 and 2020. Governments and other external sources financed the remaining 44 percent of the increase.

Figure 3 takes a closer look at the sources of external financial aid that have cushioned the blow. In 1990,

Figure 3. Average External Financial Aid, 1990–2020



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs at all colleges and universities.

external financial aid for the average student (including students who received no aid) totaled $1,726. By 2020, external aid for the average student had more than tripled, to $5,328.

Financial aid from all sources has increased over the past three decades. Some of this growth is attributable to demographic change: The percentage of low-income students (those from families earning less than $50,000 in 2023 dollars) in the analysis sample rose from 15 percent in 1990 to 22 percent in 2020. Since low-income students qualify for more financial aid, this has increased average awards.

But most of the rise in financial aid is due to policy changes that have made financial aid programs more generous. Congress has repeatedly increased the maximum Pell Grant, which results in larger grants for lower-income students. However, as Jason D. Delisle and Cody Christensen have documented, the Pell Grant's formula design means that hikes in the maximum award make more middle-income students eligible for aid. A student from a typical middle-income family would not have qualified for a Pell Grant in 1995–96 but today receives over $1,000.[6]

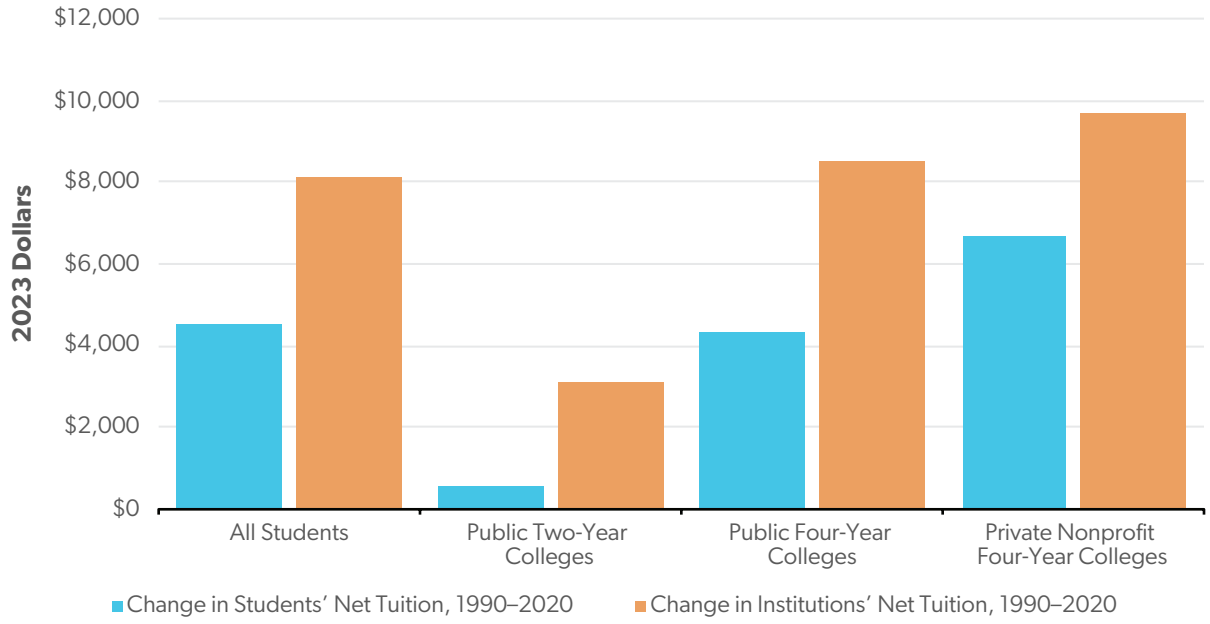
States, too, have poured more money into their aid programs. In 1990, California's Cal Grant, a need-based scholarship program, doled out just $325 million. Today, Golden State students receive more than $2.2 billion per year in Cal Grant benefits.[7] Federal veterans' educational benefits also saw rapid growth, particularly between 2008 and 2012.[8]

The glass-half-full perspective on these trends is that generous increases in financial aid have somewhat mitigated the burden of higher college costs for students. But it is likely that when policymakers increased student financial aid, they were expecting students' net tuition to fall. The glass-half-empty perspective is that society has vastly increased its contribution to college costs but largely has nothing to show for it. Students' net tuition has still gone up; institutions have largely captured the increases in financial aid.

Net Tuition by Institution Type

Figure 4 summarizes the changes in net tuition overall and in three major sectors of higher education. Across the board, rises in external financial aid have driven a

Figure 4. Changes in Net Tuition by Institution Sector, 1990–2020



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs at all colleges and universities.

wedge between tuition paid by students and tuition received by institutions. While students' net tuition has increased considerably at four-year colleges over the past 30 years, institutions' net tuition has increased even more.

Students often view public two-year colleges as an affordable option. Until recently, average net tuition and fees at these schools was negative, meaning the average community college student received a rebate from their school. Even today, students' net tuition at community colleges is below $1,000—only modestly higher than its level in the 1990s (Figure 5).

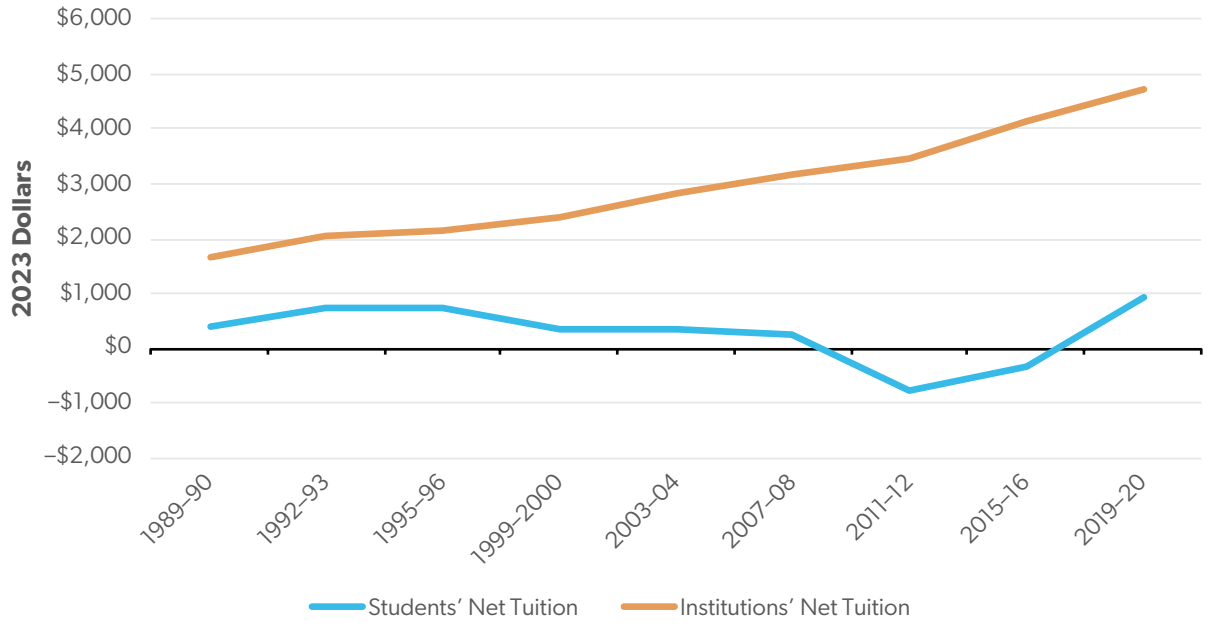
But public two-year colleges have nonetheless enjoyed considerable increases in tuition revenue, thanks to external financial aid (especially Pell Grants). Federal, state, and other external grants supplied $1,289 in aid per community college student in 1990; today, the figure is nearly $4,000. This aid enables community colleges to collect an average of $4,752 in tuition revenue per student—even though students themselves directly pay only a fraction of that.

Price increases are more obvious at public four-year colleges. At these schools, students' net tuition increased from $2,336 in 1990 to $6,661 in 2020 (a $4,325 increase, or 185 percent). Institutions' net tuition increased by $8,548, from $3,749 to $12,297 (a 228 percent increase), over the same time period (Figure 6). (Note that these averages include both students paying the in-state tuition rate and students paying the out-of-state rate.) Today, external financial aid contributes nearly half of the tuition revenues that public four-year colleges collect.

It is notable that increases in financial aid do not always coincide with slower growth in students' net tuition. Both students' and institutions' net tuition increased rapidly between 2000 and 2016, a period during which average external financial aid per student more than doubled. Since 2016, the increase in net tuition has been more modest, even though this was a period of virtually no growth in external financial aid.

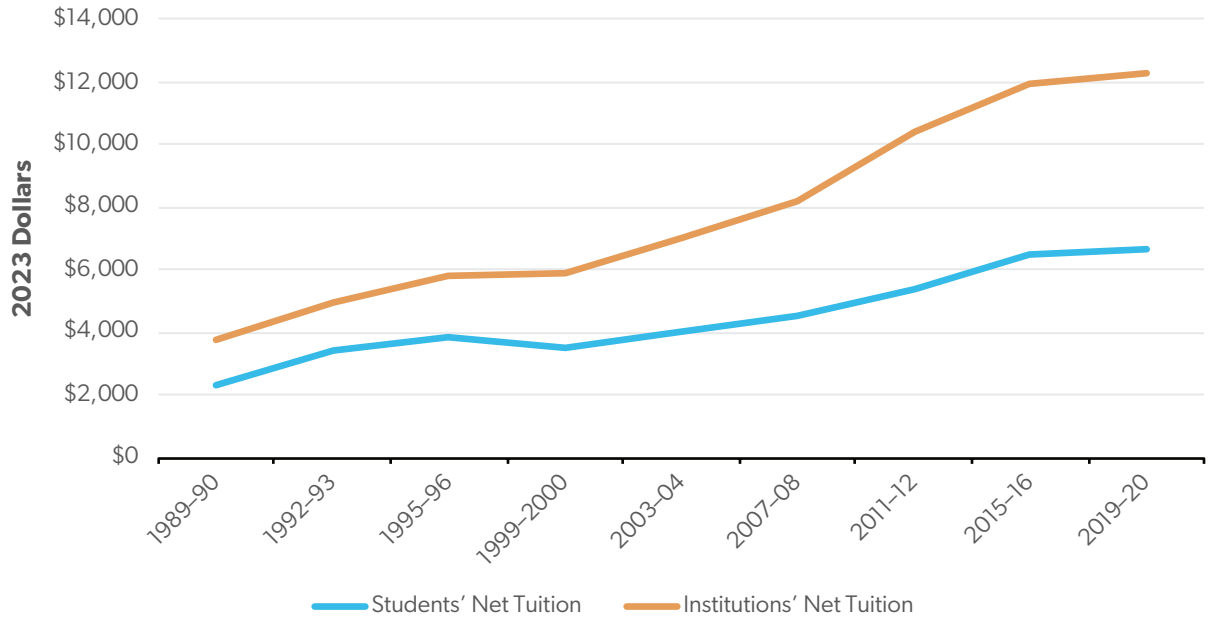
The intended targets of means-tested financial aid programs such as Pell Grants are low-income students, which I define as dependent students from families earning less than $50,000 in today's dollars. Figure 7 displays net tuition for this group at public four-year

Figure 5. Net Tuition at Public Two-Year Colleges, 1990–2020



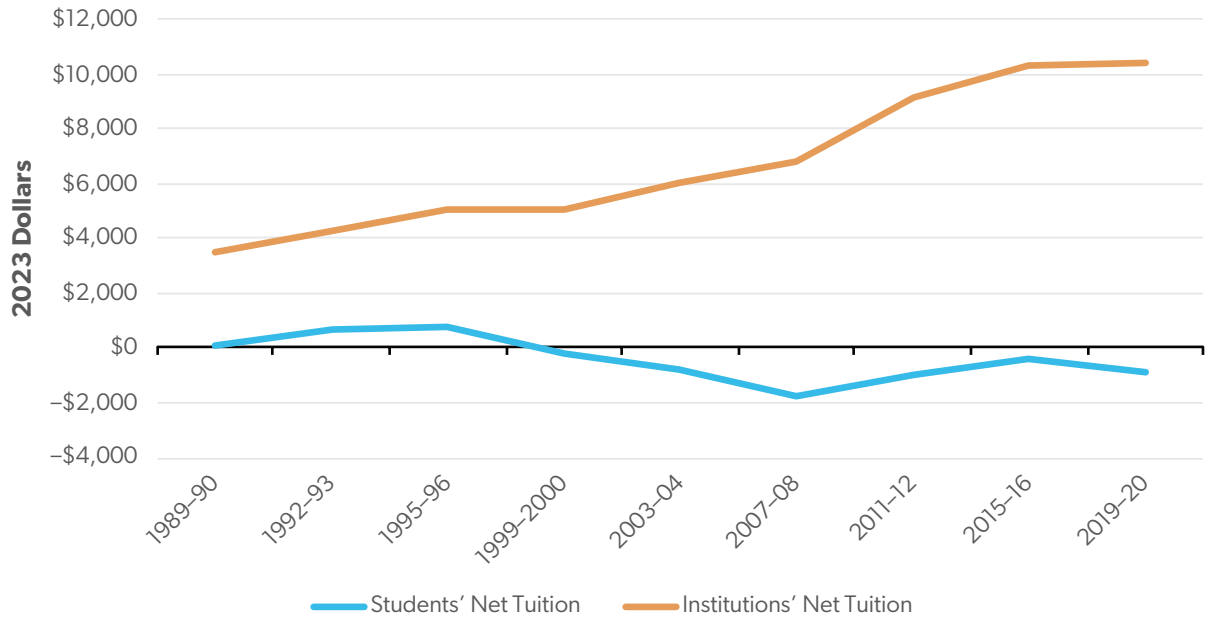
Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs at public two-year colleges.

Figure 6. Net Tuition at Public Four-Year Colleges, 1990–2020



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs at public four-year colleges.

Figure 7. Net Tuition for Low-Income Students at Public Four-Year Colleges, 1990–2020



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year, low-income students in undergraduate degree programs at public four-year colleges. Low-income students are dependents from families with a household income below $50,000 in 2023 dollars.

colleges. While institutions' net tuition increased from $3,553 to $10,415 (193 percent) between 1990 and 2020, students' net tuition was basically flat, hovering around $0 for the past three decades.

Taxpayers and other sources commit an impressive amount of financial aid to low-income students at public colleges. The average low-income student received $11,253 in external financial aid in 2020, up from just $3,491 in 1990 (a 222 percent increase). This fully covers average tuition. The typical low-income student actually receives a small rebate from their institution, which helps cover living expenses.

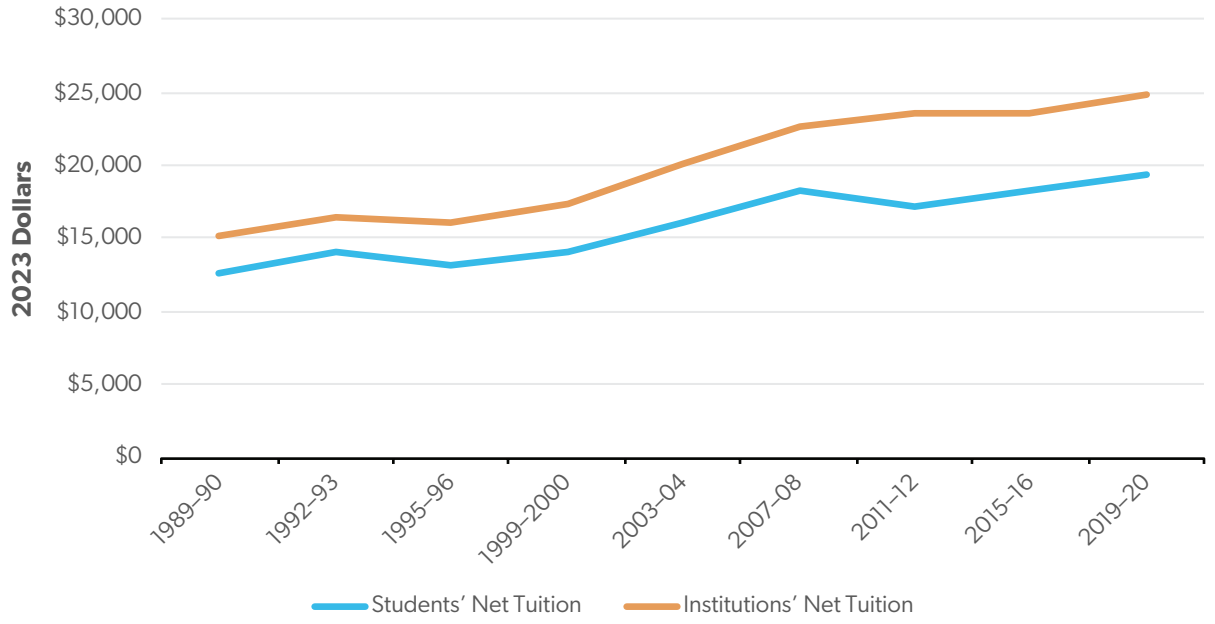
Once again, there are optimistic and pessimistic ways to interpret these developments. The glass-half-full perspective points to the success of external aid programs like Pell Grants at keeping tuition down for low-income students. However, one could also point out that taxpayers have significantly increased their contribution to low-income students' higher education—yet students' net tuition has barely budged. Policymakers might have hoped that increases in financial aid would help low-income students cover their living expenses; instead, institutions have largely captured those additional funds.

Both measures of net tuition have also increased at private nonprofit four-year colleges. While these schools charge higher tuition, and external financial aid covers a smaller portion of it, directionally the trends are similar to public four-year schools. Figure 8 shows that students' net tuition at private nonprofit four-year schools increased from $12,697 to $19,407 ($6,710, or 53 percent) between 1990 and 2020, while institutions' net tuition increased from $15,239 to $24,927 ($9,687, or 64 percent).

Larger financial aid awards somewhat softened the blow. The average private college student receives $5,520 in external aid, which accounts for a little more than one-quarter of institutions' net tuition.

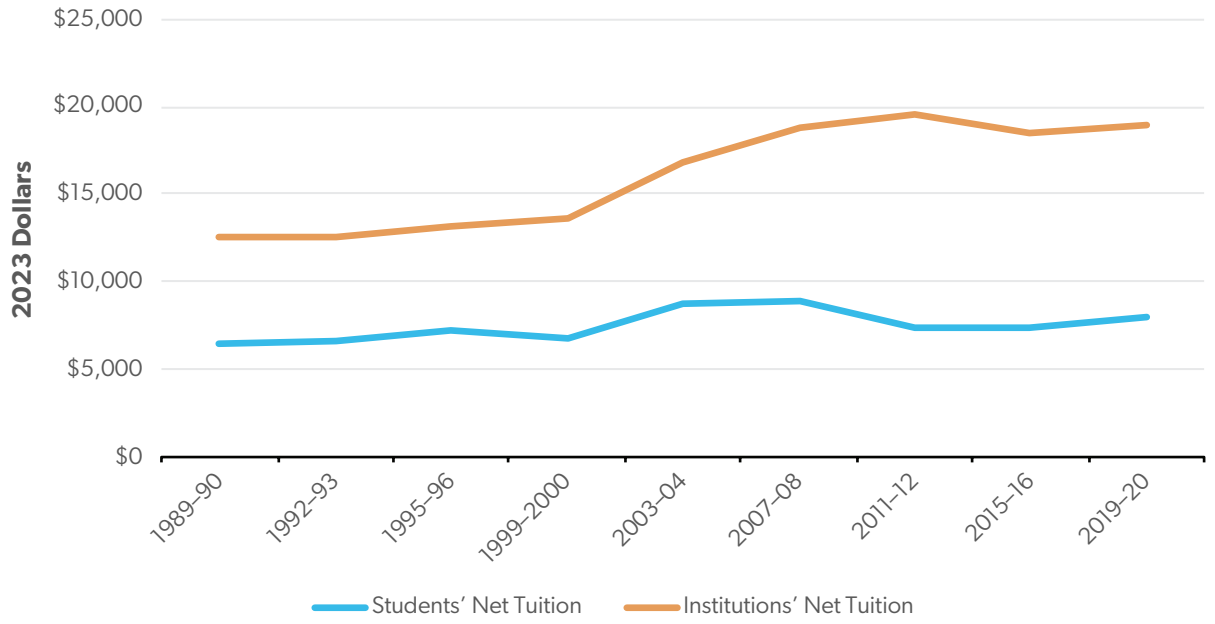
Low-income students at private colleges have been somewhat protected from these increases (Figure 9). External financial aid for low-income students doubled between 1990 and 2020; the average low-income student now receives over $11,000 from external grants. This has mitigated tuition hikes for low-income

Figure 8. Net Tuition at Private Nonprofit Four-Year Colleges, 1990–2020



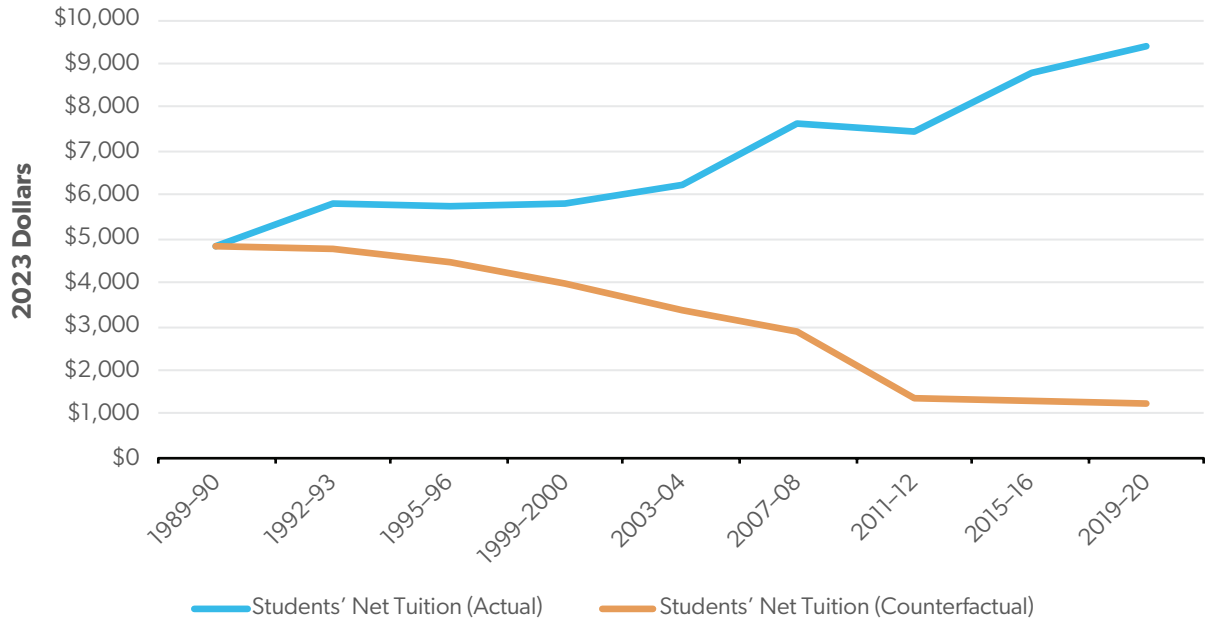
Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs at private nonprofit four-year colleges.

Figure 9. Net Tuition for Low-Income Students at Private Nonprofit Four-Year Colleges, 1990–2020



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year, low-income students in undergraduate degree programs at private nonprofit four-year colleges. Low-income students are dependents from families with a household income below $50,000 in 2023 dollars.

Figure 10. Students' Net Tuition, Actual vs. Counterfactual



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/; and author's calculations.
Note: The sample includes full-time, full-year students in undergraduate degree programs at all colleges and universities.

students, who pay 22 percent more than they did in 1990 (compared to a 52 percent tuition hike for the average student). Still, it is notable that significant increases in financial aid have not managed to bring down net tuition for low-income students at private colleges.

Overall, colleges have enjoyed rapid increases in net tuition revenue over the past three decades. Students have borne around half the increase, and larger financial aid packages from external sources have financed the rest. While those larger grants mean students' net tuition has not increased as quickly as institutions' net tuition, policymakers may be disappointed to find that generous rises in financial aid spending have largely not reduced net tuition for students.

Counterfactual Net Tuition

That institutions have captured increases in external financial aid raises an interesting counterfactual. What if institutions had fully passed on those increases in aid to students through lower tuition? In other words, what would have happened if institutions' net tuition had frozen in real terms at 1990 levels, but external financial aid still increased at its actual rate?

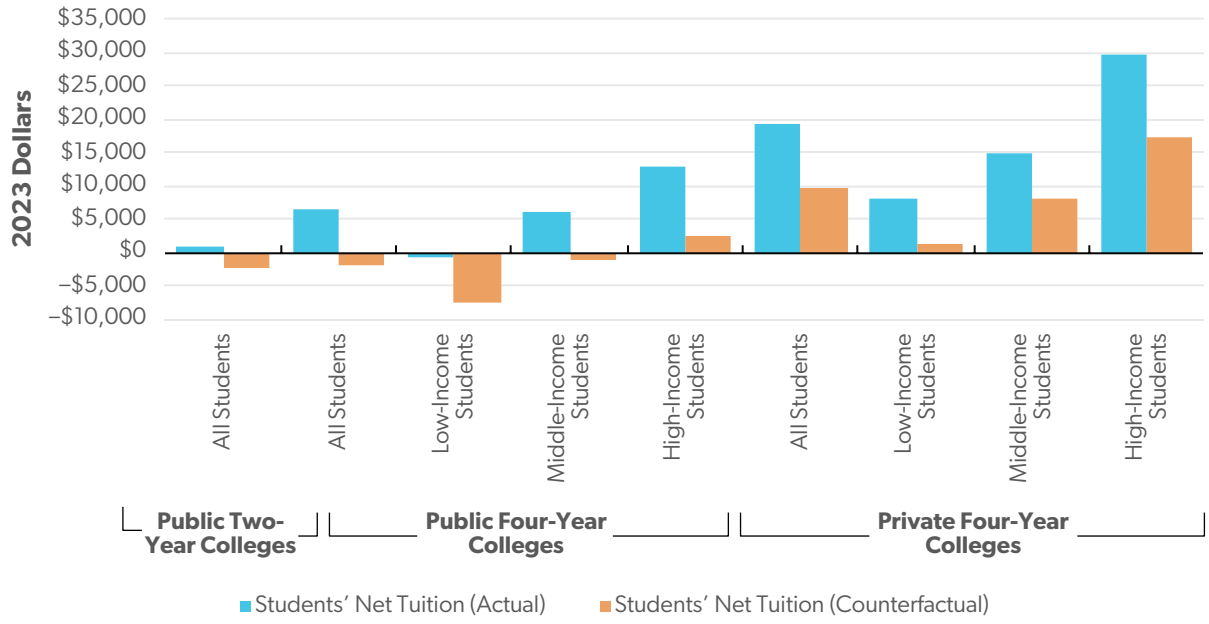
Recall that in 1990, institutions' net tuition for the average student was $6,577, adjusted for inflation. Students received average financial aid awards of $1,726, which brought students' net tuition down to $4,851. By 2020, institutions' net tuition had risen to $14,704. External financial aid amounted to $5,328, which brought students' net tuition down to $9,377.

But what if institutions' net tuition had remained at its 1990 level in real terms while external financial aid continued to increase? In this counterfactual scenario, institutions' net tuition in 2020 would be $6,577, just as in 1990, while financial aid would be $5,328. This would have brought students' net tuition down to just $1,249 (Figure 10).

In other words, if colleges had kept their prices at 1990 levels, the average student would have nearly free tuition today.

Figure 11 replicates this exercise for different institutions and subgroups of students. Had institutions frozen their real prices at 1990 levels and thus allowed

Figure 11. Students' Net Tuition in 2019–20, Actual vs. Counterfactual



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Postsecondary Student Aid Study, https://nces.ed.gov/surveys/npsas/.
Note: The sample includes full-time, full-year students in undergraduate degree programs. Low-income students are dependents from families with a household income below $50,000 in 2023 dollars, while high-income students are dependents from families with a household income above $120,000 in 2023 dollars.

100 percent of increases in external financial aid to pass on to students, students' net tuition today would be far lower across the board.

The average student at a public four-year college would have free tuition today. The average low-income student would receive a significant rebate (in theory $7,700, but not all financial aid awards are applicable to nontuition expenses, so this may be a modest overestimate of the rebate). Even at private schools, low-income students would pay just $1,445 on average after financial aid.

Conclusion

Insufficient financial aid has often taken the blame for rising tuition, leading advocates and lobbyists to propose policies such as doubling the maximum Pell Grant. The argument often goes that college costs have risen but financial aid has not kept up—meaning a substantial new investment in aid sources like Pell Grants is overdue.[9]

However, this report shows that taxpayers have in fact dramatically increased financial aid spending. Unfortunately, colleges raised their prices even more, so the net tuition students pay still went up. Had colleges maintained tuition at 1989–90 levels, the increased generosity of financial aid from governments and other external actors would have delivered free tuition for the average public college student.

It is important to note that this report does not establish a *causal* link between rising financial aid and increases in institutions' net tuition. That is, the analysis does not prove or disprove the "Bennett hypothesis" that colleges hike tuition in response to financial aid increases.[10] The causality could run in the other direction: Rising college tuition might drive political demand for boosts in financial aid. However, the analysis does cast doubt on the potential for financial aid increases alone to solve the problem of college affordability.

The NPSAS data series ends in 2019–20. However, higher education has seen remarkable developments

since then. College enrollment dropped in the wake of the pandemic, which brought about reductions in real sticker prices.[11] That has occurred simultaneously with a $1,000 increase in the maximum Pell Grant since 2021.[12] There are early indications that these developments have driven down net prices for most groups of students, though the impacts on institutions' net tuition are unclear.[13] The 2023–24 iteration of NPSAS should provide more evidence when it is released.

This report highlights that increases in institutions' net tuition have nullified the impacts of rising financial aid, as institutions have largely captured those additional dollars. Policymakers should be cautious about plans to dramatically increase financial aid, such as doubling the Pell Grant, that do not also address the prices institutions charge. Instead, policymakers should look to solutions that attack the root causes of rising tuition, such as barriers to entry in higher education.[14]

Methodological Notes

This analysis uses the NCES PowerStats tool to analyze NPSAS data. Unless otherwise noted, each figure includes all full-time, full-year undergraduates in associate degree or bachelor's degree programs. The analyses for public institutions include students paying the in-state and out-of-state tuition rates, as the goal of this report is to analyze changes in institutions' tuition revenue over time in addition to what the typical student is paying. I use the Personal Consumption Expenditures Price Index to adjust all figures for inflation to 2023 dollars; experts argue that the index is optimal for measuring changes in the price level over the long run.[15]

I use averages rather than medians to measure the central tendency of tuition and financial aid variables. Unlike medians, averages are stackable: The average published tuition minus the average institutional aid equals the average institution's net price, whereas the median published tuition minus the median institutional aid does not necessarily equal the median institution's net price. Averages are also more useful to measure financial aid, as many interesting aspects of financial aid are found in the tails of the distribution. For instance, if only 30 percent of students receive a Pell Grant, the median Pell Grant is $0, but $0 presents a misleading picture of the per-student level of Pell Grant spending.

About the Author

Preston Cooper is a senior fellow at the American Enterprise Institute, where his work focuses on higher education return on investment, student loans, and higher education reform.

Notes

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4. US Department of Education, Institute of Education Sciences, National Center for Education Statistics, "National Postsecondary Student Aid Study (NPSAS)," https://nces.ed.gov/surveys/npsas/.

5. This number is somewhat higher than the average published tuition and fees reported in NCES Digest of Education Statistics tables because it includes students at public universities who pay the out-of-state tuition rate. Moreover, NCES Digest tuition figures are weighted by the number of full-time-equivalent students enrolled in each institution (thus giving more weight to schools enrolling more part-time students, which tend to have lower tuition), whereas the figures in this report are limited to full-time students only. US Department of Education, Institute of Education Sciences, National Center for Education Statistics, "Table 330.10. Average Undergraduate Tuition, Fees, Room, and Board Rates Charged for Full-Time Students in Degree-Granting Postsecondary Institutions, by Level and Control of Institution: Selected Academic Years, 1963–64 Through 2022–23," December 2023, https://nces.ed.gov/programs/digest/d23/tables/dt23_330.10.asp.

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