# College Affordability: What Is It and How Can We Measure It?

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This paper is one in a series of reports funded by Lumina Foundation. The series is designed to generate innovative ideas for improving the ways in which postsecondary education is paid for in this country—by students, states, institutions and the federal government—in order to make higher education more affordable and more equitable. The views expressed in this paper—and all papers in this series—are those of its authors and do not necessarily reflect the views of Lumina Foundation, George Washington University, the Urban Institute, or the College Board.

# Table of Contents

# Figures and Tables

# Executive Summary

Discussions of improving college affordability are rarely grounded in a concrete definition of what it really means. This paper moves toward a more meaningful understanding of the financial accessibility of postsecondary education for students in different circumstances. We argue that the central question should be whether students, regardless of their ages when they enroll in college, can reasonably expect to improve their long-term standards of living, even after paying for college. Paying for college involves combining students' own resources both before and after college, resources their parents can provide, and financial aid from all sources. College affordability applies to students, not to parents. *Parents can subsidize students to make college more affordable for them. But the focus should be on the students themselves.*

First steps in defining and measuring college affordability involve defining both the expenses and the resources that should be included. Should living expenses be considered part of the cost? How should we measure and treat forgone wages? Should the focus be on the least expensive postsecondary options, the most expensive, or something in between? Rather than settling on one answer to this question, it is constructive to measure and monitor all of these indicators to get a complete view of college affordability. The same is true of the resource side of the equation. Parents' ability to contribute to their children's education is a critical issue, but only part of the question of how much students can afford. Whether students are dependent or independent, they may have resources of their own before and during college and most significant, they expect a financial return over the long run. College affordability is not just dependent on pre-college resources, but also on the magnitude of the expected return to the investment.

In this paper, we address the uncertainty in the return to postsecondary education and its impact on perceptions of college affordability, raise questions about the current concept of "unmet need," and examine the difference between published tuition and fee prices and the net prices students actually pay after taking grants and other gift aid into consideration. We ask how the price of college relative to the prices of other goods and services affects both ability to pay and the perception of ability to pay.

Measuring affordability requires a thoughtful approach to estimating how much students can afford to pay out of their future incomes, combined with improved measures of how much we can expect parents in different circumstances to subsidize their children. It is not sufficient to consider just current income and asset levels, as income over time and changing inequality in the distribution of income and wealth are relevant as well.

We propose defining and tracking an integrated set of metrics over time to monitor changes in college affordability. A clear view of the distribution of prices, earnings, other resources, and student debt will not yield one measure of college affordability, but monitoring changes over time in these indicators and the variety of circumstances facing students would provide a much better understanding of the financial accessibility of the wide variety of postsecondary options available.

# College Affordability: What Is It and How Can We Measure It?

College affordability applies to students, not to parents. Parents can subsidize students to make college more affordable for them. But the focus should be on the students themselves.

Widespread concern about whether college is "affordable" is leading to a search for policy solutions. The President, members of Congress, and other public officials promise to take actions to assure that college is affordable. But little effort has been made to develop a concrete definition of what this really means. The discussion usually focuses on the price of college and other associated expenses, and on the growth in prices relative to family incomes. Instead, we should focus on whether students, regardless of their ages when they enroll in college, can reasonably expect to improve their long-term standards of living, even after paying for college. Paying for college involves combining their own resources both before and after college, resources their parents can provide, and financial aid from all sources.

One problem with simple indicators of affordability is the variety of postsecondary options available. The word "college" applies to thousands of postsecondary institutions in the United States. Like the missions, programs, and opportunities offered by these institutions, the prices vary dramatically. About 150 community colleges charge full-time in-district students less than $2,000 a year in tuition and fees in 2013-14. At the other end of the spectrum, a similar number of private nonprofit four-year colleges and universities charge tuition and fees exceeding $40,000.[1]

Furthermore, these published prices are not the prices most students pay. Many institutions discount their prices for some, most, or even all of their students. Federal and state governments, as well as numerous private organizations, also provide grants and scholarships that reduce the prices students pay.

Another complexity is defining exactly what should be included in the "price" that should be affordable. A reasonable perspective is that tuition and required fees constitute the relevant price. The core issue is providing access to education and training—the services purchased with tuition and fees. But what about the books and supplies required for effective studying? What about room and board at residential colleges, or even housing and food costs for students not living on campus? People must eat and have shelter whether they are students or not, so these are not actually costs of going to college. But if students have to set up separate households in order to be in geographical proximity to their institutions, it is reasonable to argue that covering these expenses is part of what should be addressed in discussions of college affordability. And there is evidence that living on campus has a positive impact on academic success.[2]

Of fundamental importance, it is impossible to define affordability only in terms of prices and required expenditures. The resources available to pay the prices determine how much people can afford. Given the large and growing inequality of incomes in the United States—

and the even greater inequality of wealth—expenditures that would require years of earnings for some people could be easily covered out of pocket by others.

Defining which resources are relevant for determining affordability is at least as difficult as defining prices. Discussions of affordability for recent high school graduates usually focus on parental income and assets. A few years after high school graduation, we stop thinking about parental resources and consider only how much money students themselves have.

But college is more than just a consumption good; it is an investment that pays off over time. Therefore, it is not logical to consider only the resources already available before a student begins college. No one thinks a house is affordable only if the buyer can pay cash. No one thinks starting a small business is affordable only if the entrepreneur already has the money to cover all of the start-up costs. In both cases, we assume that borrowing will be part of the picture and try to predict how much people will be able to pay over time.

All of these issues may seem obvious. But none are adequately considered in assertions that college is unaffordable. It is not enough to determine that college is expensive, or even that it is becoming more expensive. We must develop definitions of affordability that clarify who is in a position to pay for which types of postsecondary education and how that is changing over time.

The complexity of the concept makes is clear that there cannot be one metric that will define affordability or make it possible to monitor affordability over time. Rather, we should focus on measuring how much different people need to pay for different educational opportunities and what options they have for making these payments. It is reasonable to say that if a particular option requires an increasing proportion of a student's (or her family's) resources over time, it is becoming more difficult to afford. It is probably not reasonable to draw a bright line between what is affordable for any individual and what is not, since that is actually quite subjective. We might be able to define what people in different circumstances would have to give up in order to purchase postsecondary education, but personal preferences and priorities will determine whether or not any individual is willing and able to make the necessary sacrifice.

In this paper, we address these issues in an attempt to develop viable concepts of affordability that can be used to assess the financial accessibility of postsecondary education for students in different circumstances. We examine data to shed light on the feasibility of financing different types of education and how that feasibility has changed over time. We also propose a set of metrics that could be monitored to make discussions of college affordability more constructive.

The remainder of the paper is structured as follows. In Sections 1 and 2, we discuss what it means for college to be "affordable" and the roles of students and parents in financing a college education. Section 3 provides information on the changing price of college. Sections 4 and 5 focus on determining how much parents and students can be expected to contribute. Section 6 describes some of the metrics that could be monitored to describe changes in college affordability over time and Section 7 concludes. The Appendix includes examples of potential metrics to supplement those appearing throughout the text.

## Section 1: What Does It Mean for College to be "Affordable?"

### Unmet Need

One metric frequently cited as an indicator of college affordability is "unmet need."[3] The basic concept is a good one—how much more does a student have to pay for college than she can afford to pay? But there are many problems with the current definition. Measures of unmet need take as a given that the "expected family contribution (EFC)" derived from the federal need analysis formula (FM) is a reliable measure of what a student can afford. Unmet need is then defined as the

total cost of attendance (including room and board and other expenses) at the institution where the student is enrolled less the sum of financial aid received and the EFC. It is, of course, not possible to measure this gap for students who are *not* enrolled, and these are likely to be the students for whom the financial barriers are greatest. Those who are enrolled are apparently managing to scrape together the needed funds.

Unfortunately, the calculated EFC is not a good estimate of what families can really afford to pay, and it is an even worse estimate of what students can reasonably be expected to pay for their own education. The formula is the result of years of political manipulation and does not rest on any careful analysis of ability to pay for higher education. Among the many problems with the formula, it is based on one year of income and is designed to estimate manageable payments out of that income. Most people consider calculated EFCs too high to be paid out of current income, but there has been little attempt to estimate reasonable payments out of longer-term resources.

Using the concept of calculated unmet need to define affordability without first developing a reasonable definition of what is affordable and how to improve on the EFC as a measure of that amount simply avoids the fundamental issue.

A measure of what is affordable is only the first step in developing a more meaningful concept of unmet need. How to treat loans and tax credits in measuring resources is not simple. All of the questions raised above about which resources and which expenses should be considered also apply here.[4] Should the cost of food be included as part of "unmet need" in determining college affordability? Should high unmet need at a high-price institution with limited grant aid be the metric for college affordability just because a student chose this option? Unmet need provides some information, especially if measured over time. But it is far from a reliable metric of the gaps we should be filling in in order to assure adequate access to postsecondary education.

## Expensive vs. Unaffordable

Many discussions of college being "unaffordable" focus on rising tuition prices, without much attention to the resources available to students to pay those prices. For example, the Department of Education's College Affordability and Transparency Center lists colleges and universities with the highest and lowest tuition and net cost of attendance by sector as well as schools with the highest percentage increase in tuition by sector.[5] A Huffington Post blog announces that "It's Too Expensive to Go to College Anymore."[6] The Washington Post's *Wonkblog* runs a series entitled, "The Tuition is Too Damn High."[7]

When resources are considered, the most common approach is to cite the average published tuition and fee price as a percentage of median family income or as a percentage of family income for dependent students at different levels of the income distribution.[8] Sometimes the reference is to the total cost of attendance, including room and board and other expenses (making the situation look worse) and sometimes it is to the net price, taking grant aid into consideration (making the situation look better).

The discussion above makes it clear that this simple approach is inadequate. First and foremost, it focuses only on resources available before college, without attention to the return on the investment. Moreover, it provides no insights into how students whose parents either have no available resources or are not in the picture might think about how much they can afford for college. And it makes no distinction between changes resulting from rising prices and those resulting from declining incomes or changing asset levels.

Like any other purchase, any given postsecondary option becomes more affordable either if its price declines or if an individual (or family) has increased resources. Rising concerns about college affordability are not just the result of rising published prices—and net prices that are rising, albeit more slowly than published prices. The reality is that as incomes have fallen or stagnated in recent years

for all except those at the top of the income distribution, and as home values—where many people hold most of their wealth—plummeted, household budgets have become increasingly strained. If it is challenging to cover daily expenditures, the idea of a major expenditure being added on becomes all the more daunting. At least for families with children graduating from high school, the expenditure is not unanticipated. If they were saving over time in preparation, education would be much more affordable. But absent this not-so-frequent pattern, many families are overwhelmed.

### Uncertain Outcomes

Another reason for the concern is the increased visibility of uncertainty in the return to postsecondary education. Particularly in an economy characterized by high unemployment, a college education does not guarantee an immediate, satisfying and remunerative employment opportunity. As the experiences of the minority of college graduates facing real struggles in the labor market have gotten more attention, the problem is not just the rising price of college. It is also the question of whether the return is worth the investment. All of these issues are part of the complete story of college affordability.

## Section 2: Affordable for Whom?

### Focusing on the Student, Not the Parents

Focusing only on family income at the time students enroll in college is an inadequate method for determining what is affordable. This approach provides little insight into how older students might finance postsecondary education. It ignores the question of how much students themselves—whether dependent or independent—can afford to pay out of the significant earnings premium most students experience as a result of postsecondary education.

Current measures of ability to pay are quite generous to independent students with dependents of their own, because the costs of supporting their families are taken into account. Most are not assumed to be able to contribute at all.[9] If so many students really had no capacity to contribute to either their tuition or their living expenses while in school, we would have to question whether the education is really worth it. Why should either students or taxpayers struggle to buy an expensive service that will generate debt, deficits, and hardships, unless there is a high payoff? Certainly improvements in quality of life, broadened horizons, personal growth, and more effective citizenship are worth quite a bit. But students are exerting considerable effort and taxpayers are setting priorities in order to assure a more productive labor force and more financially self-sufficient households. The return to the investment should be considered in discussions of how much students can afford to pay for college.

We propose thinking about affordability for older independent students and younger dependent students in an integrated manner, rather than accepting the current rather arbitrary dividing line between younger students, whose parental resources contribute to their ability to pay, and older students, who are expected to rely only on their own resources. *College affordability applies to students, not to parents. Parents can subsidize students to make college more affordable for them. But the focus should be on the students themselves.*

One of the reasons making postsecondary education accessible to all who can benefit from it is so important is because in most cases, it increases earnings over a lifetime. Abstracting from the vital non-pecuniary benefits of a college education, it is a good investment if it has a favorable rate of return.[10] So a central question is whether the present discounted value of the increase in the student's lifetime earnings will be high enough to yield a reasonable rate of return on his or her investment.

This logic applies to all students, whether they are still dependent on their parents or not. Of course for each individual student, future earnings and thus the return on investment are uncertain. But focusing on averages is sufficient for a conceptual discussion. If the expected return is not high enough, then another educational

path is probably advisable. Even if a student has wealthy parents who can pay cash up front without asking for any contribution from the student's current or future earnings, the investment may be a poor one if the funds could be better invested elsewhere.

Using this framework, the core question of affordability applies not to parents, but to students. If we focus on parental income before college, we would conclude that young people growing up in low-income households cannot afford to pay anything for college. But that is illogical. They cannot afford *not* to go to college if that is the route to assuring a secure future for themselves and their families. And they can afford to dedicate some portion of their increased future earnings to paying for college.

A constructive way to incorporate parental resources into this investment framework is to think of parental contributions as reducing the price that students must pay. In the same way that a Pell Grant—a subsidy from the federal government—reduces the net price to a student, a similar subsidy from parents reduces the net price to a student. This logic allows us to focus only on affordability for students, regardless of their age or family situations. Part of the determination, however, depends on how much of a subsidy it is reasonable to expect each student to receive from parents or from other sources.

How much can a student afford to pay for college? This depends on their expected earnings premium. Adding the amount the student can afford to pay to subsidies received from parents and/or from financial aid yields an estimate of the price tag that is affordable. Some difficult judgments will of course arise. And in many cases, maximizing lifetime earnings—as opposed to generating sufficient lifetime earnings—may be both unnecessary and undesirable.

## Section 3: Judging the Price of College

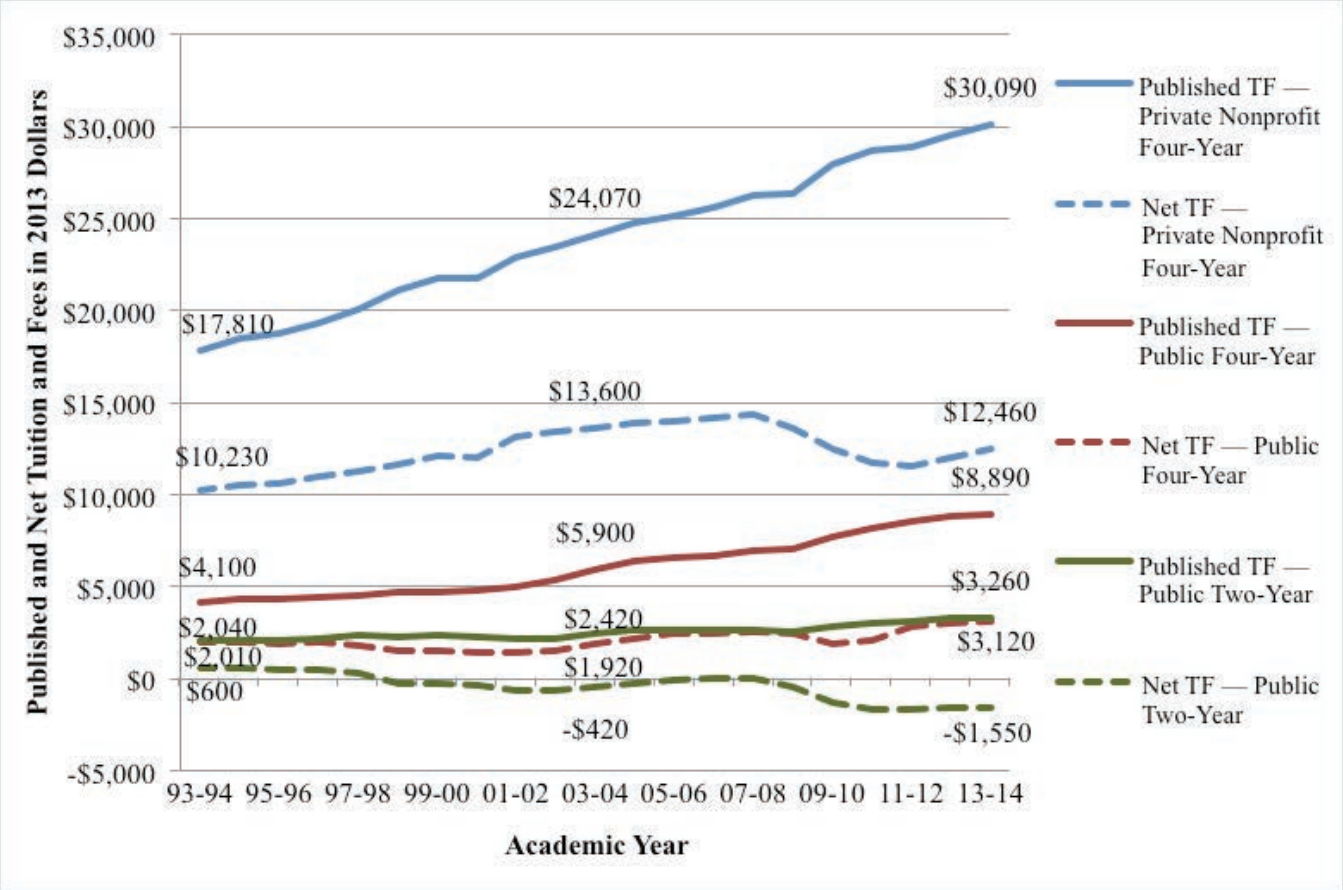
### Trends in Published Prices and Net Prices

It is widely recognized that the rate of increase in the published tuition and fee price of college has far exceeded the rate of increase in average prices in the economy over time. This reality makes college appear increasingly "unaffordable." During the 20-year period from 1993-94 to 2013-14, the Consumer Price Index (CPI) increased by 62%, while published tuition and fee prices increased by 162%, 251%, and 173% in the public two-year, public four-year, and private nonprofit four-year sectors, respectively, before adjusting for inflation.[11] After adjusting for inflation, average published tuition and fees increased by 62%, 117%, and 69%, respectively, in the three sectors over 20 years. But changes in net tuition and fees—the amount students actually pay after taking grant aid and tax benefits into consideration—tell a much different story.

Figure 1 shows inflation-adjusted published and net tuition and fee prices by sector from 1993-94 to 2013-14. During this 20-year time period, net tuition and fee prices increased at much slower rates than published prices in the four-year sectors—by 53% (from $2,040 in 2013 dollars to $3,120) in the public four-year sector and by 22% (from $10,230 in 2013 dollars to $12,460) in the private nonprofit sector. Average net tuition and fees for full-time students in the public two-year sector declined during this period, from $600 in 2013 dollars in 1993-94 to -$1,550 in 2013-14.

As discussed above, including living expenses in the cost of going to college is questionable, since people must have food and housing whether or not they are in school. Nonetheless, since these are expenses that students must pay, it is important to examine them. As Figure 2 on page 9 shows, the patterns are similar when room and board are included. The percentage increases in inflation-adjusted net tuition, fee, and room and board (TFRB) charges are much smaller than those in published TFRB charges for all sectors.

**Figure 1:** Published and Net Tuition and Fees (TF) in 2013 Dollars, by Sector, 1993-94 to 2013-14

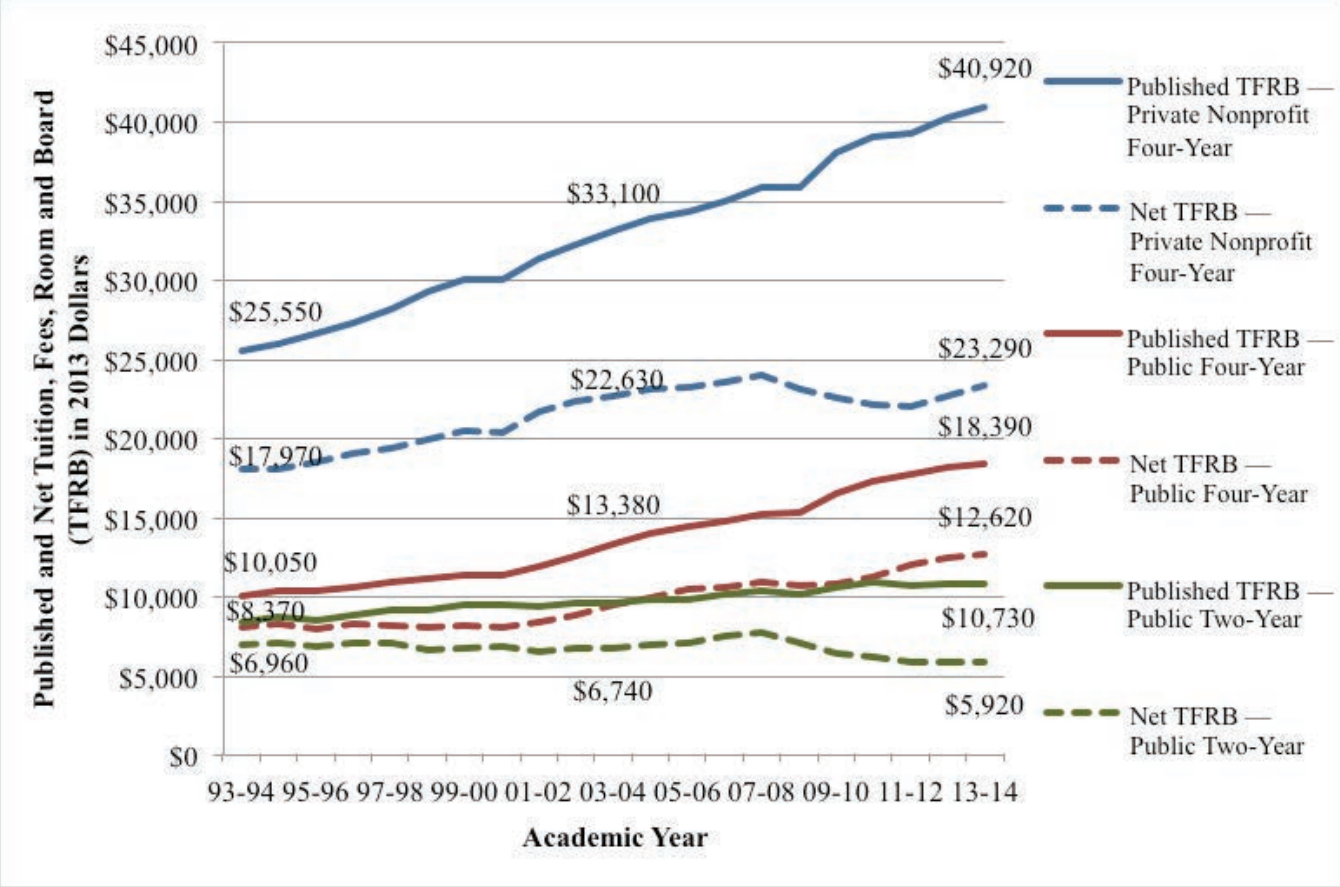



| | Public Two-Year | | Public Four-Year | | Private Nonprofit Four-Year | |
|---|---|---|---|---|---|---|
| | Published TF | Net TF | Published TF | Net TF | Published TF | Net TF |
| 1993-94 | $2,010 | $600 | $4,100 | $2,040 | $17,810 | $10,230 |
| 2003-04 | $2,420 | -$420 | $5,900 | $1,920 | $24,070 | $13,600 |
| 2013-14 | $3,260 | -$1,550 | $8,890 | $3,120 | $30,090 | $12,460 |
| 20-Year $ Change | $1,250 | -$2,150 | $4,790 | $1,080 | $12,280 | $2,230 |
| 20-Year % Change | 62% | -358% | 117% | 53% | 69% | 22% |

**Note:** Published tuition and fee prices in the public two-year and public four-year sectors reflect prices charged to in-state students. Net tuition and fee prices are calculated by subtracting total grant aid from all sources and federal education tax credits from published prices.

**Source:** The College Board, *Trends in College Pricing 2013*, online Tables 2, 7, and 8.

**Figure 2:** Published and Net Tuition, Fees, Room and Board (TFRB) in 2013 Dollars, by Sector, 1993-94 to 2013-14




| | Public Two-Year | | Public Four-Year | | Private Nonprofit Four-Year | |
|---|---|---|---|---|---|---|
| | Published TFRB | Net TFRB | Published TFRB | Net TFRB | Published TFRB | Net TFRB |
| 1993-94 | $8,370 | $6,960 | $10,050 | $7,990 | $25,550 | $17,970 |
| 2003-04 | $9,580 | $6,740 | $11,380 | $9,400 | $33,100 | $22,630 |
| 2013-14 | $10,730 | $5,920 | $18,390 | $12,620 | $40,920 | $23,290 |
| 20-Year $ Change | $2,360 | -$1,040 | $8,340 | $4,630 | $15,370 | $5,320 |
| 20-Year % Change | 28% | -15% | 83% | 58% | 60% | 30% |

**Note:** Published tuition and fee prices in the public two-year and public four-year sectors reflect prices charged to in-state students. Net TFRB charges are calculated by subtracting total grant aid from all sources and federal education tax credits from published TFRB prices.

**Source:** The College Board, *Trends in College Pricing 2013*, online Tables 2, 7, and 8.

A relevant question is whether living expenses differ for college students and others of similar ages. It is clear that if it is necessary to set up a separate household, expenses rise. But is there any indication that either rent or food is higher for students than for others? Data from the Consumer Expenditure Survey show that in 2011–2012, adults 25 or younger living alone spent an average of $2,900 on food and $4,500 on rent per year.[12] The total spending on food and rent ($7,400) is similar to the room and board expenses for public two-year commuters ($7,466 in 2013-14), but lower than the room and board charges at both public four-year ($9,498) and private nonprofit four-year ($10,823) schools. However, it is worth noting that only 55% of full-time undergraduate students in the private nonprofit sector and 30% in the public four-year sector lived on campus in 2011-12.[13]

Another commonly-cited measure of price is the total cost of attendance (COA), which includes estimated budgets of books and supplies, transportation, and other expenses in addition to tuition and fees and room and board. In 2013-14, these non-TFRB budget items account for 33% of the COA for full-time public two-year students, 19% for public four-year students, and 9% for private nonprofit four-year students (Table 1). These non-TFRB budget items exceed the published in-state tuition and fees for public two-year students and are 50% and 13% of published tuition and fees for full-time public four-year in-state and private nonprofit four-year students, respectively.

## A Context for College Prices

It may be helpful to put college price changes in context. In 1971, the median price of houses sold was $25,600. Published in-state tuition and fees for four years at public four-year colleges and universities averaged $1,712, about 7% of the price of a house. By 2006, the median price of a house had increased by a factor of about 10, to $250,400. Over the same time, the average in-state tuition and fee price of four years at a public college rose to $23,216,

**Table 1:** Average Estimated Full-Time Undergraduate Budgets, 2013-14 (Enrollment-Weighted)

| Sector | Tuition and Fees (TF) | Room and Board | Books and Supplies | Transportation | Other Expenses | Cost of Attendance (COA) | Non-TFRB Expenses as a % of Total COA | Non-TFRB Expenses as a % of TF |
|---|---|---|---|---|---|---|---|---|
| Public Two-Year In-State Commuter | $3,264 | $7,466 | $1,270 | $1,708 | $2,225 | $15,933 | 33% | 159% |
| Public Four-Year In-State On-Campus | $8,893 | $9,498 | $1,207 | $1,123 | $2,105 | $22,826 | 19% | 50% |
| Private Nonprofit Four-Year On-Campus | $30,094 | $10,823 | $1,253 | $990 | $1,590 | $44,750 | 9% | 13% |

**Source:** The College Board, *Trends in College Pricing 2013*, Figure 1.

about 14 times as high as it had been 35 years earlier. The average published in-state tuition and fee price for four years at public four-year colleges increased from 7% to 9% of the price of a house. Between 2006 and 2011, housing prices fell by 15%, while average public four-year published in-state tuition and fees rose by 43%.[14]

As mentioned earlier, net tuition and fee prices have been rising at a much slower pace than published tuition and fee prices. Between 1991 and 2011, the average net tuition and fees for four years at public four-year colleges increased from 4% to 5% of the price of a house.

On one hand, if housing prices and college prices rise at the same rate, the trade-off between buying housing and buying education remains constant.[15] In other words, if housing prices are rising at the same rate, rising college prices do not seem so "unaffordable." Moreover, as housing prices rise, people who already own homes, as is the case for the parents of many college students, experience increases in net worth providing resources to pay for college. On the other hand, if monthly housing expenses rise for new homebuyers or for renters, people with given incomes have lower discretionary incomes out of which to pay for education, making education less affordable.

Houses are an exception because they act as a store of wealth, as opposed to something people have to buy out of their incomes, along with paying for education. As the price of college rises relative to other prices, people have to give up more consumption of other goods and services in order to pay for college. A thorough analysis of this issue would require more data and analysis than this discussion can include, but a brief look will elucidate the question. The Consumer Price Index for (published) college tuition and fees was 3.14 times as high in 2013 as in 1993. In contrast, the CPI for legal services was 2.20 times as high and the CPI for food at home was 1.67 times as high as in 1993. This means that consumers had to give up more in terms of legal services or food at home in order to pay the published price for a year of college.[16]

Table 2 provides some examples of the change in relative prices of tuition and some other goods and services. For example, in 2013 consumers could, on average, purchase 2.9 times as many new cars in exchange for a year of tuition as they could have purchased in 1993. This perspective on the rising price of college would be moderated if we focused on net price instead of published price, but provides a powerful insight into concerns over declining affordability.

As Archibald and Feldman (2012) point out, if other goods and services get relatively cheaper, there is more discretionary income and people should be able to pay higher prices for college.[17] But the rising relative price of

**Table 2:** Amount of Other Goods and Services That Could Be Purchased for Average Published Tuition and Fee Price Relative to 1993

| | All Items | Information Technology Hardware & Services | New Vehicles | Food at Home | Child Care & Nursery School | Rent of Primary Residence | Legal Services | College Tuition and Fees |
|---|---|---|---|---|---|---|---|---|
| 1993 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 2003 | 1.4 | 8.5 | 1.7 | 1.4 | 1.1 | 1.3 | 1.1 | 1.0 |
| 2013 | 1.9 | 29.0 | 2.9 | 1.9 | 1.4 | 1.8 | 1.4 | 1.0 |

**Source:** Bureau of Labor Statistics, Consumer Price Index Customized Tables, http://data.bls.gov/cgi-bin/dsrv?cu; calculations by the authors.

college makes it appear less affordable, whether or not people are actually less able to pay for it.

## Choosing Benchmarks

An issue that distinguishes paying for college from paying for many other goods and services is the gap between the actual required expenditures and perceptions of that expenditure. The car market is similar in some ways. If I want to buy a new car, there are many options with many different price tags and the price I will actually pay depends on how successfully I can negotiate with the salesperson. Most people borrow at least a portion of the price and pay over time. But for most purchases, people can look at the price tag and decide on the spot whether they are able and willing to pay or not.

Some of the recent efforts to increase the information available to students choosing postsecondary educational paths seem to be modeled on the automobile market. In addition to the wide variety of models available and the gap between sticker prices and prices paid, both education and cars are products that are difficult for consumers to evaluate. Walking around a campus or exploring the website provides only superficial information. The same is true of a test drive. The stakes are high in both cases—safety in the case of automobiles. But government regulation allows shoppers to trust that all available models are safe and to focus on less critical characteristics that fit their personal preferences and pocketbooks.

While in theory the accreditation process and the provision of federal student aid should eliminate "unsafe" colleges, it's not at all clear that this is the case. And while for students choosing among elite residential colleges, the food in the dining hall, the quality of the athletic facilities, and the level of political activism among the student body might be analogous to the design differences among automobiles, many of the differences among institutions are much more critical.

Moreover, the car is the same regardless of who is driving it. The college experience depends at its core on the relationship between the student and the institution and the best college for one individual might be a very poor choice for another. As long as the cars are safe, we don't really worry about whether some people can afford only a budget car while others can choose a luxury car. But a low-tuition community college offers very different opportunities than a public flagship university.

This complicates the affordability question quite a bit. Do we just want to assure that students can afford the lowest-price option? Do we have to assure that all students can choose among any institutions for which they are academically prepared, regardless of price? Surely the answer lies somewhere in between these two extremes.

## Actual vs. Perceived Affordability

How should we evaluate a policy that increases affordability but not perceived affordability? If people perceive postsecondary education as unaffordable, they are likely to make decisions that limit their participation and success. Some policies that increase affordability from an objective perspective may not significantly affect that perception. Federal tax credits provide a good example. Federal subsidies to college students and their families through tax credits and deductions increased from about $7 billion in 2007-08 to about $17 billion in 2009-10.[18] Clearly, these tax policies reduce the price people pay and make college more affordable. But because people don't associate their lower tax bills directly with their tuition bills, they are likely not to feel that they can actually afford to pay an extra $2,500 a year for college as a result of a $2,500 a year tax credit.

This difference between perception and objective reality raises the question of whether just lowering prices or just providing more financial aid really has the desired impact. Insights from the burgeoning field of behavioral economics are helpful here. The idea is not that people fail to respond to monetary incentives, but that their responses do not always follow the model of purely rational economic agents. People make judgments based on the information that is most salient in their

minds, rather than by weighing all of the facts and figures. If they hear every day that college prices are skyrocketing, that college is out of reach for all but the wealthy, they are likely to believe that. They may have no idea that financial aid is available. The complexity of the aid and pricing systems compounds the problem.

How things are framed also matters. The example of the recent proposal in Oregon to "Pay It Forward" is instructive. The proposal would eliminate up-front tuition payments and replace them with the requirement that students pay a percentage of their incomes for a specified number of years after they leave school. The proposal is described as: "Pay It Forward (HB 3472) will provide access for all Oregonians to a debt-free degree and protect funding for public higher education."[19] A requirement to make payments later is a debt by another name. But calling it something other than debt seems to have a big psychological impact, allowing people to breathe a sigh of relief.

## Variation in Prices

As discussed above, the net prices students actually pay have risen more slowly over time than published tuition and fee prices. The differential between the two prices varies considerably across income levels and average net prices conceal very different scenarios for students in different circumstances.

For example, for low-income students enrolled in public research universities, the average net tuition and fee price (in 2011 dollars) declined from -$703 in 1999-2000 to -$1,647 in 2007-08, before rising to -$1,064 in 2011-12. In other words, grant aid left low-income students with more funding to cover non-tuition expenses in 2011-12

**Table 3:** Net Tuition and Fees and Net Cost of Attendance in 2011 Dollars at Public Research Universities, by Family Income Quartile of Full-Time Dependent Students, 1999-2000 to 2011-12

| Quartile of Parents' Income of Dependent Students | 1999-2000 | 2003-04 | 2007-08 | 2011-12 | $ Change from 1999-2000 to 2011-12 |
|---|---|---|---|---|---|
| **Net Tuition and Fees** | | | | | |
| Lowest | -$703 | -$674 | -$1,647 | -$1,064 | -$361 |
| Second | $1,983 | $2,724 | $1,661 | $3,075 | $1,092 |
| Third | $4,374 | $4,775 | $5,588 | $7,165 | $2,791 |
| Highest | $5,552 | $6,282 | $7,289 | $9,431 | $3,879 |
| **Net Cost of Attendance** | | | | | |
| Lowest | $10,750 | $11,520 | $11,960 | $12,978 | $2,229 |
| Second | $13,473 | $14,832 | $14,817 | $17,006 | $3,533 |
| Third | $15,962 | $17,089 | $18,954 | $21,193 | $5,231 |
| Highest | $17,171 | $18,791 | $20,924 | $23,727 | $6,556 |

**Note:** Net prices are calculated by subtracting grant aid from all sources and veterans' benefits from published tuition and fees and cost of attendance. Income categories (all in 2011 dollars) for each year are: lowest: less than $30,000; second: $30,000 to $64,999; third: $65,000 to $105,999; highest: $106,000 or higher.

**Source:** NCES, NPSAS: 2000, 2004, 2008, and 2012.

than in 1999-00 or in 2003-04. If room and board and other expenses in students budgets are also included, the average net price for low-income students increased by $2,229 (in 2011 dollars) or 21% from 1999-2000 to 2011-12.

The picture is quite different for the third income quartile (with incomes between $65,000 and $105,999 in 2010). For these upper-middle-income students, the average net tuition and fee price at public research universities has increased at an accelerating rate and was 64% ($2,791 in 2011 dollars) higher in 2011-12 than in 1999-00. Focusing on total costs of attendance diminishes the contrast across income groups, yielding an increase of 33% or $5,231 for these students.

These figures suggest increasing affordability issues for the third income quartile of dependent undergraduate students. But comparing net prices for these students across types of institutions reveals that the net price increase has been larger for public research universities than for other sectors (Table 4). For example, at private research universities, net tuition and fees increased by 10% in real terms for this group over this time period (total cost of attendance increased by 21%).

These examples illustrate the difficulty of finding one answer about how the price of college has changed over time—even before comparing that price to the resources available to pay.

## Opportunity Costs

A very real cost of attending college is the opportunity cost of time. If students leave the labor force in order to study, their forgone wages are a cost of going to college. In reality, many college students work at least part time, complicating the task of measuring this cost. Opportunity cost is rarely included in discussions of college affordability, but it is useful to develop some approximations and consider the impact of changes in forgone wages on affordability.

Between 2002 and 2012, median earnings for male high school graduates between 18 and 24 increased by 3%, from $14,560 to $15,000. This amounted to a 19% decline after accounting for inflation. Women's median earnings declined in both nominal and real terms during this 10-year period—9% in nominal and 29% in real terms. In other words, the opportunity cost of going to college declined over this time period.

**Table 4:** Net Tuition and Fees in 2011 Dollars for Third Income Quartile of Dependent Undergraduates, 1999-2000 to 2011-12

| Carnegie Classification | 1999-2000 | 2003-04 | 2007-08 | 2011-12 | % Change from 1999-2000 to 2011-12 |
|---|---|---|---|---|---|
| Public Associate | $1,434 | $1,576 | $1,949 | $1,906 | 33% |
| Public Research | $4,374 | $4,775 | $5,588 | $7,165 | 64% |
| Public Master's | $3,696 | $4,060 | $4,402 | $5,587 | 51% |
| Public Bachelor's | $4,083 | $4,594 | $4,875 | $5,494 | 35% |
| Private Research | $14,627 | $18,967 | $18,117 | $16,156 | 10% |
| Private Master's | $9,394 | $11,562 | $13,172 | $13,582 | 45% |
| Private Bachelor's | $10,309 | $10,410 | $13,788 | $12,317 | 19% |

**Source:** NCES, NPSAS: 2000, 2004, 2008, and 2012.

Discussions of the increase in college enrollments during recessions frequently acknowledge that limited labor market opportunities contribute to greater participation in postsecondary education. But it is not so easy to think of declines in wages as making college more affordable. If the declines persist and students have lower earnings after they leave school, they will have less ability to pay for college. But changes in the opportunity cost of college are a critical component of the cost of college. For men who are giving up $15,000 a year of earnings to go to college, tuition at public two-year and four-year colleges becomes a relatively small part of what they are paying if they leave the labor market to spend a year in college.

## Section 4: How Much Can Families Afford to Subsidize Their Children?

Students whose parents are in a position to subsidize their college education can afford to pay more than others because they can combine their own resources with parental resources. Students who do not have parents who can subsidize them are likely to require grant aid from other sources to supplement what they can pay out of their future earnings premium.

Determining the subsidy amount that is reasonable to expect from parents is the question usually framed as how much the student (and family) can afford to pay. As noted above, it is common to cite the ratio of the net price of college to family income. But it is not easy to evaluate these ratios.

A family with a higher income can afford to contribute a higher percentage of their income for college, all other things equal, so one benchmark percentage is not adequate. Moreover, a precise definition of what is affordable for the family is not possible, but defining discretionary income is a reasonable starting point.

Through much of the 20th century, the Bureau of Labor Statistics (BLS) constructed living standards based on the prices of market baskets of goods. However, more recently the consensus is that observing how much households in different circumstances actually spend is a more constructive approach than attempting to prescribe how much they should be spending.[20] In other words, rather than specifying that people should consume the most basic diet that provides the necessary nutrients, we should look at how much households at the 25th or 50th percentile of the income distribution spend on food and use that as a standard.

The federal poverty guidelines are prescriptive rather than descriptive, but are used to determine eligibility for a number of means-tested public programs. The Economic Policy Institute's Family Budget Calculator estimates that all families need more than twice the federal poverty line to get by.[21] The 2013 poverty guidelines for the 48 contiguous states from the U.S. Department of Health and Human Services are shown in Table 5.

Considering income exceeding a specified percentage of the poverty line discretionary will have a very different impact over time from using median income as a benchmark because the poverty line, which is adjusted annually for changes in the Consumer Price Index, tends to decline relative to median income. As Table 6 shows,

**Table 5:** 2013 Federal Poverty Guidelines

| Number in Household | 2013 Federal Poverty Guideline |
|---|---|
| 1 | $11,490 |
| 2 | $15,510 |
| 3 | $19,530 |
| 4 | $23,550 |
| 5 | $27,570 |
| 6 | $31,590 |
| 7 | $35,610 |
| 8 | $39,630 |

**Source:** U.S. Department of Health and Human Services, Poverty Guidelines, http://aspe.hhs.gov/POVERTY/13poverty.cfm#guidelines.

**Table 6:** Median Family Income and Poverty Guidelines in Current Dollars for Families with Four People, 1982 to 2012, Selected Years

| | Median Family Income | Poverty Guideline | 200% of Poverty Guideline | 200% Poverty Guideline/Median Family Income |
|---|---|---|---|---|
| 1982 | $27,619 | $9,300 | $18,600 | 0.67 |
| 1987 | $37,086 | $11,200 | $22,400 | 0.60 |
| 1992 | $44,251 | $13,950 | $27,900 | 0.63 |
| 1997 | $53,350 | $16,050 | $32,100 | 0.60 |
| 2002 | $62,732 | $18,100 | $36,200 | 0.58 |
| 2007 | $75,675 | $20,650 | $41,300 | 0.55 |
| 2012 | $79,698 | $23,050 | $46,100 | 0.58 |

**Sources:** U.S. Census Bureau, Income, Poverty and Health Insurance in the United States: 2012, Historical Income Table F-8, http://www.census.gov/hhes/www/income/data/historical/families/; U.S. Department of Health and Human Services, Poverty Guidelines, http://aspe.hhs.gov/POVERTY/figures-fed-reg.cfm.

200% of the poverty guideline for a family of four was $18,600 in 1982, 67% of the $27,619 median income of families of four. By 1992, the ratio had declined to 63% and in 2012, 200% of the poverty guideline for a family of four was $46,100, 58% of the $79,698 median income of families of four.

If we assume that a family with income below 200% of the poverty guideline cannot afford to make a measurable contribution to tuition and fees for children, the simplest way to derive an approximation of how much a family can afford to contribute is to assume a fixed percentage of income exceeding the threshold of 200% of the poverty level.[22] As Table 7 on page 17 illustrates, this type of formula yields contribution-to-income ratios that increase with income. Choosing, for example, 25% would yield estimated contributions from parents of only 1% of total income of $50,000 (just above 200% of poverty), of 10% of total income of $80,000 (approximately median family income), and 18% of total income $160,000 (about twice median family income).

Without making judgments about the exact optimal schedule, it is possible to use this approach as the foundation for assuming that students from higher-income families can afford to pay more for college than others (absent financial aid) because they should expect subsidies from their parents, diminishing the portion of their education they must finance on their own.

However, this simple formula assumes that parents can contribute only out of their current incomes. It is more reasonable to assume that parents can plan for college, save over time, make contributions from assets, and even borrow against future income. One possibility, desirable because of its simplicity, is to use current income as a proxy for longer-term financial capacity. This becomes more reasonable if instead of using only one year of income, we look at three or more years of income, a viable possibility if data from the Internal Revenue Service are available.

Before accepting this approach, however, it is useful to gain some insight into the savings and asset accumulation patterns of families in different circumstances, as well as income stability over time. Aggregate data confirm that family incomes are sensitive to business cycles and assuming a steady rate of growth

**Table 7:** Total Family Income, Discretionary Income, and Potential Contribution from Discretionary Income for Families with Four People, 2013

| Family Income | Discretionary Income (Total Income minus 200% of Poverty Guideline) | Contribution from Discretionary Income | | | | | |
|---|---|---|---|---|---|---|---|
| | | 50% | | 25% | | 10% | |
| | | Dollars | As a % of Total Income | Dollars | As a % of Total Income | Dollars | As a % of Total Income |
| $40,000 | -$7,100 | $0 | 0% | $0 | 0% | $0 | 0% |
| $50,000 | $2,900 | $1,450 | 3% | $725 | 1% | $290 | <1% |
| $60,000 | $12,900 | $6,450 | 11% | $3,225 | 5% | $1,290 | 2% |
| $80,000 | $32,900 | $16,450 | 21% | $8,225 | 10% | $3,290 | 4% |
| $100,000 | $52,900 | $26,450 | 26% | $13,225 | 13% | $5,290 | 5% |
| $120,000 | $72,900 | $36,450 | 30% | $18,225 | 15% | $7,290 | 6% |
| $140,000 | $92,900 | $46,450 | 33% | $23,225 | 17% | $9,290 | 7% |
| $160,000 | $112,900 | $56,450 | 35% | $28,225 | 18% | $11,290 | 7% |

over time is likely to over-burden families affected by recessions.

## Income over time

As Figure 3 on page 18 shows, between 1982 and 2007, median family income in the United States increased by 27% and 33% for all families and for families of four, respectively, after adjusting for inflation. Median family income for all families peaked at $67,944 in 2007 and was $62,241 by 2012. Median family income for families of four peaked at $83,802 in 2007 and was $79,698 in 2012.

Perhaps more important for determining the validity of basing expected contributions from parents on a single year of income information is an understanding of changes in relative incomes, which would affect the equity of expectations across families. The rate of change in median income underestimates the growth in incomes at the top and overestimates changes at the bottom of the income distribution. As Figure 4 on page 19 shows, average income for families in the lowest income quintile was the same in real terms in 2012 as it had been in 1982. Over these thirty years, average income increased by 16% for the middle quintile, by 53% for the highest quintile, and by 87% for the top 5% of families in the U.S.

This reality implies that using the most recent year of income as an indicator of long-term financial capacity over-estimates the contributions we should expect from lower-income families relative to those we should expect from more affluent families.[23]

## Savings

At the national level, the personal saving rate experienced a slight upward trend between 1952 and 1975, from 11.1% to 13.0% (Figure 5 on page 20). Between 1975 and 2005, it declined sharply from 13.0% to 2.6%. Since 2005, the saving rate has been going up, reaching 5.6% in 2012.

The overall decline in the saving rate contributes to an understanding of the difficulties families experience in subsidizing their children's education. Low levels of accumulated savings, combined with annual expenditures that consume all or almost all of a family's income, make this added demand all the more challenging.

Not surprisingly, higher-income families save higher percentages of their incomes than lower-income families. Estimates suggest that saving rates range from 1% for families in the lowest income quintile to 24% for families in the highest quintile, a figure heavily affected

by the 51% saving rate of the top 1%.[24] If the lowest 20% of families—those with incomes below $27,795 in 2012—are expending their entire incomes, they will have considerable difficulty contributing measurable amounts to their children's education.

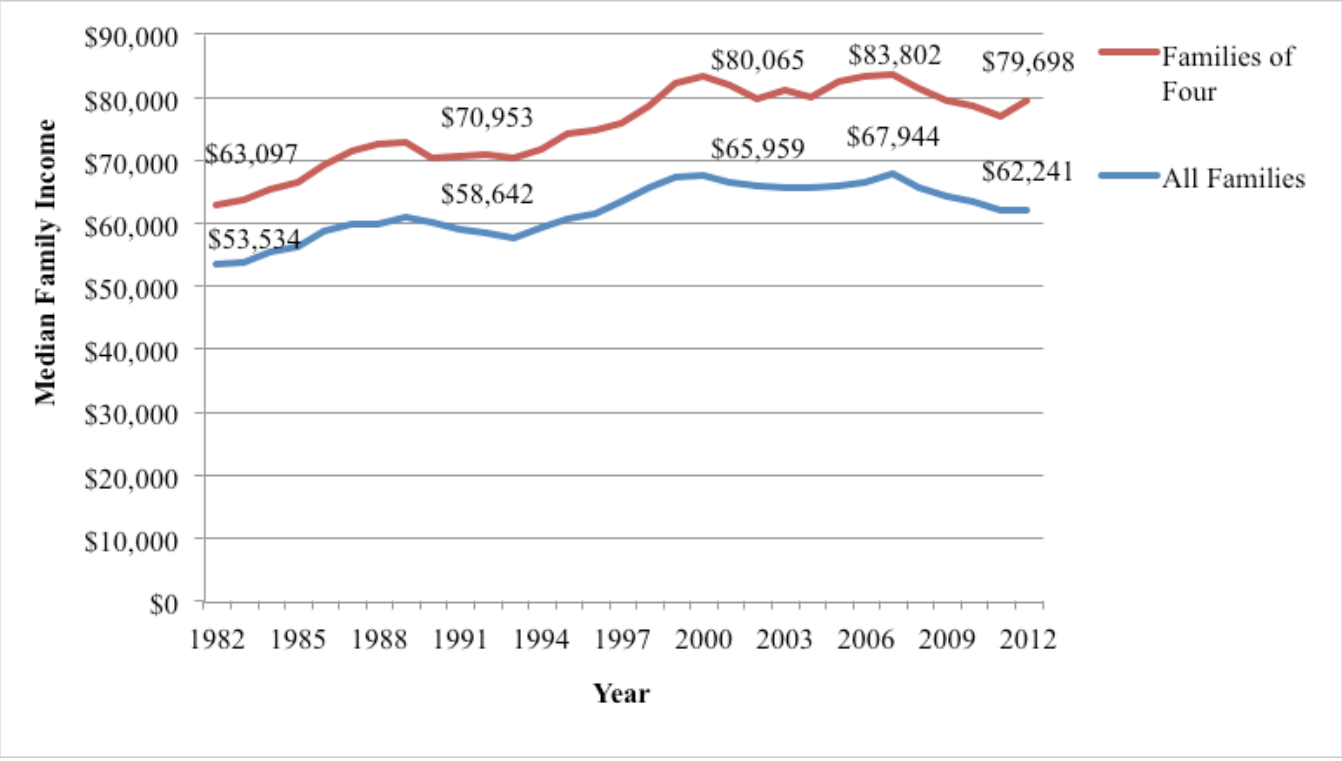
The disparity in saving rates and the growing inequality in income make it unsurprising that, as shown in Table 8 on page 21, inequality in net worth has increased over time, making it more difficult—at least in relative terms, for middle-income families to subsidize their children's education by relying on contributions from assets.

Monitoring changes in the distribution of income, in the saving rate, and in the distribution of net worth across families cannot yield a precise estimate of what families can afford to contribute to postsecondary education, but it sheds light on both changes in that capacity and differences across families.

## Section 5: How Much Can Students Afford to Contribute Out of Income?

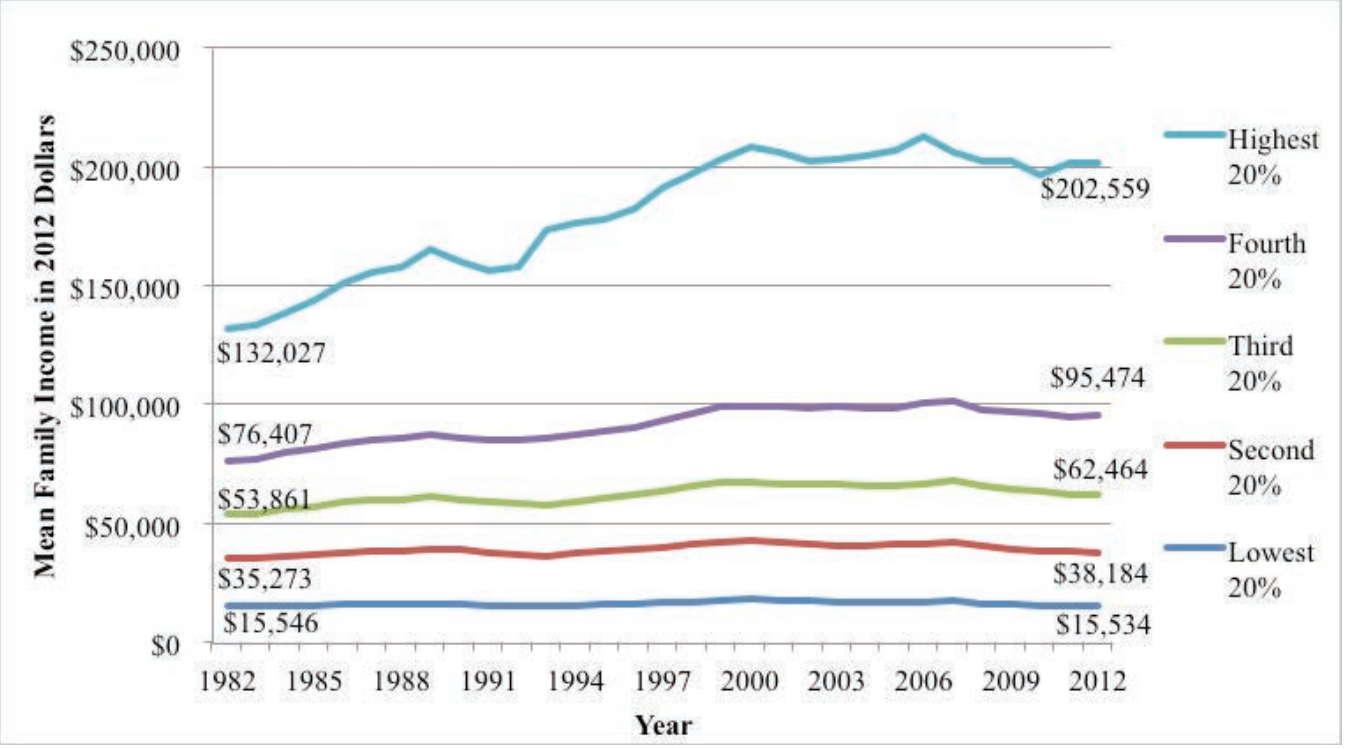
The difference between the average earnings of high school graduates and the average earnings of adults of similar ages with some college, associate degrees, or bachelor's degrees is an imperfect measure of the amount by which an individual's earnings increase as a result of their investment in postsecondary education. Some of the differential may be attributable to systematic differences in the personal characteristics of people with different levels of education. And there is considerable variation in earnings within educational categories.

**Figure 3:** Median Family Income in 2012 Dollars for All Families and Families of Four People in the United States, 1982 to 2012




**Source:** U.S. Census Bureau, Income, Poverty and Health Insurance in the United States: 2012, Historical Income Table F-8, http://www.census.gov/hhes/www/income/data/historical/families/.

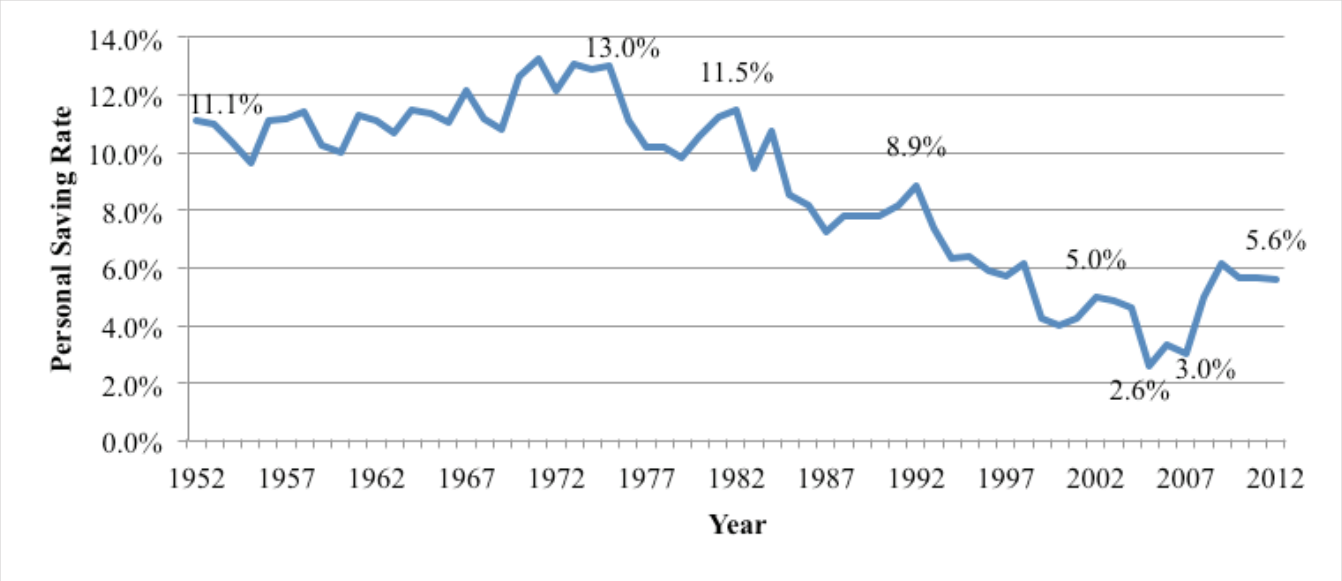
**Figure 4:** Mean Family Income in 2012 Dollars by Quintile, 1982 to 2012




| | Lowest 20% | Second 20% | Third 20% | Fourth 20% | Highest 20% | Top 5% |
|---|---|---|---|---|---|---|
| $ Change 1982–2012 | -$12 | $2,911 | $8,603 | $19,067 | $70,532 | $163,442 |
| % Change 1982–2012 | 0% | 8% | 16% | 25% | 53% | 87% |
| 2012 Income Bracket | $27,794 or less | $27,795 to $49,788 | $49,789 to $76,538 | $76,539 to $119,001 | $119,002 or more | $210,001 or more |
| 2012 Mean Income | $15,534 | $38,184 | $62,464 | $95,474 | $202,559 | $352,338 |

**Source:** U.S. Census Bureau, Income, Poverty and Health Insurance in the United States: 2012, Historical Income Table F-3, http://www.census.gov/hhes/www/income/data/historical/families/.

**Figure 5:** Personal Saving Rate in the United States, 1952 to 2012




**Note:** Personal saving rate is the percentage of after-tax (disposable) income that was not spent and is based on the National Income and Product Accounts (NIPAs) data.

**Source:** U.S. Department of Commerce, Bureau of Economic Analysis.

Postsecondary education is an investment with a high average rate of return, but it involves considerable risk. Some of the variation in outcomes is predictable, but some of it is the result of unforeseen circumstances.

Relying on averages for estimating how much people can afford to pay for college out of their future incomes is more problematic than relying on averages to estimate how much of their pre-college resources people can devote to postsecondary education because of the uncertainty involved. Some people will end up with no earnings premium at all. But a meaningful concept of affordability has to be based on averages with the understanding that some people will, in the end, not to be able to afford what looked in advance like a good investment.

The question of whether someone has the resources to pay for education is not the same as the question of how high the return to the investment in education is. People who are wealthy before and/or after college can pay for expensive educations whether or not those educations increase their earnings. Other people may in fact increase their lifetime earnings by an amount that exceeds the cost of their education, making them financially better off as a result of the education—but still have great difficulty paying the bills. Their incomes, even with the earnings premium, may not be high enough to cover a reasonable standard of living.

Is college affordable for someone who has a lifetime after-tax earnings premium that exceeds the price of college (including the opportunity cost), but whose earnings are so low as to make her struggle to make ends meet? If she has extra disposable income that she would not have had if she had not continued her education, it is questionable to call college unaffordable. College is affordable because she is better off financially after paying for college than she would have been if she had passed on the opportunity. But even with college, her income will be too

**Table 8:** Median Net Worth of Households by Income Percentile, 1989 to 2010

| | Median Net Worth in Current Dollars | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Percentile of Income | 1989 | 1992 | 1995 | 1998 | 2001 | 2004 | 2007 | 2010 |
| Lower than 20th | $1,800 | $4,000 | $6,000 | $5,800 | $7,900 | $7,500 | $8,100 | $6,200 |
| 20–39.9 | $24,100 | $27,800 | $33,500 | $33,100 | $37,400 | $33,700 | $37,800 | $25,600 |
| 40–59.9 | $41,600 | $39,600 | $46,400 | $53,400 | $63,700 | $72,000 | $88,100 | $65,900 |
| 60–79.9 | $66,500 | $75,700 | $76,100 | $112,300 | $144,300 | $160,000 | $205,800 | $128,600 |
| 80–89.9 | $132,000 | $115,700 | $128,100 | $188,500 | $263,100 | $313,700 | $356,200 | $286,600 |
| 90–100 | $388,500 | $363,700 | $355,600 | $452,400 | $833,600 | $929,600 | $1,119,000 | $1,194,300 |
| 90–100 /40–60 | 9.3 | 9.2 | 7.7 | 8.5 | 13.1 | 12.9 | 12.7 | 18.1 |

**Source:** Federal Reserve Bank, Survey of Consumer Finances.

low for a comfortable lifestyle and her loan payments may be "unaffordable."

The problem here is that a significant number of people in our economy—including some with postsecondary education—do not earn enough to have discretionary income. Clearly if college were free, they would be better off financially (assuming others bore the tax burden required to finance the free education). The same is true of housing or any other necessity. In the example above, college more than paid for itself, so deeming it unaffordable is not logical. But since basic necessities are unaffordable, additional expenses are also problematic.

### Payments for College Out of the Earnings Premium

In 2012, median earnings of all workers between the ages 25 and 34 with associate degrees were about $5,400 higher than median earnings of those with high school diplomas ($30,900 vs. $25,500). After accounting for taxes paid, this differential shrinks to about $4,000.[25]

With an earnings increment of $4,000 a year for a 40-year work life, how much could an individual afford to pay for education? Suppose we assume that half of the earnings premium can go to pay for education, while the other half supports an increased standard of living. That would allow for payments of $2,000 a year. Clearly, the length of time over which the payments are made is relevant. Suppose we limit the payments to 20 years. At an interest rate of 6.8%, this worker could pay down a debt about $22,000 over 20 years.[26]

There are many judgment calls in this example. A higher interest rate reduces the amount the borrower can repay. A longer repayment period increases the manageable debt. Perhaps the most critical question is how much of the earnings premium the borrower should be expected to devote to education.

Table 9 shows what percentage of the average earnings differential between high school graduates and four-year college graduates would be needed to make the loan payments required for different amounts of debt at different interest rates. Notably, the average debt of bachelor's degree recipients in 2011-12 who borrowed was about $30,000.[27] Paying off that debt at 6.8% interest over 10 years requires only 25% of the average monthly earnings premium.

These illustrative examples suggest that current problems are not a function of education debt actually being disproportionate to the typical college earnings

premium. Rather, the variation in outcomes, which leaves some graduates with relatively low earnings, is a central issue.[28] Moreover, the earnings levels associated with sub-baccalaureate credentials may generate problems even if they represent significant advantages relative to high school graduates.

The $30,900 median earnings of associate degree holders on which the example above is based is 2.7 times the 2013 poverty guideline for a single person, but it is only 1.3 times the poverty level for a family of four—less than the minimal amount cited above on which a family can reasonably manage. In other words, the range of post-college circumstances clouds the concept of college affordability. Even the significant earnings premium from college is frequently not enough to generate a comfortable standard of living. The dilemma is that while the higher earnings do afford people the possibility of paying for college and still being better off than without the degree, the payments do not seem affordable, because even without the payments, the earnings are inadequate.

**Table 9:** Monthly Loan Payment Amount by Repayment Period, Interest Rate, and Loan Amount

| Loan Amount | 10-Year Repayment Plan Interest Rate | | | 15-Year Repayment Plan Interest Rate | | | 20-Year Repayment Plan Interest Rate | | |
|---|---|---|---|---|---|---|---|---|---|
| | 3.4% | 5.0% | 6.8% | 3.4% | 5.0% | 6.8% | 3.4% | 5.0% | 6.8% |
| **Monthly Loan Payment** | | | | | | | | | |
| $20,000 | $196 | $211 | $229 | $142 | $158 | $177 | $115 | $131 | $152 |
| $30,000 | $294 | $317 | $343 | $212 | $236 | $265 | $172 | $197 | $228 |
| $40,000 | $393 | $423 | $458 | $283 | $315 | $353 | $229 | $263 | $304 |
| $50,000 | $491 | $528 | $572 | $354 | $394 | $441 | $287 | $329 | $380 |
| **Monthly Loan Payment as a Percentage of Monthly College Earnings Premium for All Workers Ages 25 to 34*** | | | | | | | | | |
| $20,000 | 14% | 16% | 17% | 10% | 12% | 13% | 8% | 10% | 11% |
| $30,000 | 22% | 23% | 25% | 16% | 17% | 19% | 13% | 14% | 17% |
| $40,000 | 29% | 31% | 34% | 21% | 23% | 26% | 17% | 19% | 22% |
| $50,000 | 36% | 39% | 42% | 26% | 29% | 32% | 21% | 24% | 28% |

**Note:** In this simplified example, the college earnings premium is calculated as the difference between the 2012 median earnings of all workers whose highest degree is a bachelor's degree and all workers whose highest degree is a high school diploma.

**Sources:** U.S. Census Bureau, Income, Poverty and Health Insurance in the United States: 2012, PINC-03, http://www.census.gov/hhes/www/cpstables/032013/perinc/pinc03_000.htm; calculations by the authors.

## Section 6: Developing Metrics

Meaningful metrics for assessing changes in college affordability over time cannot draw bright lines between what is affordable and what is not. Preferences and priorities vary considerably across students and families. Some families with very low incomes contribute to their children's education because they consider it so important. They are willing to eat less, to forgo entertainment, to have smaller wardrobes in order to assure this opportunity for their children. For other families, any contribution to education seems unaffordable unless it comes after restaurant meals once a week, annual vacations, and clothes that make their children feel that they fit in with their peers. Maybe even a new car every few years.

Some families will stretch to send their children to the best school they can get into. Others will see no value to paying more than the tuition at the local community college. Families in very similar financial circumstances will make very different judgments about what they are willing to sacrifice and about what is affordable.

This subjectivity, combined with the complexities highlighted in the discussion above, suggests that the most constructive approach is to develop a set of indicators that can be monitored over time to assess the financial accessibility of postsecondary education for students in different circumstances. Precise specification of the best available set of indicators will require further research and analysis, but the ideas discussed here lay the groundwork for this endeavor.

Below is a list of indicators that should be monitored over time, and should be examined in relation to one another. We have presented examples of some of these indicators throughout the paper. Additional examples are shown in the Appendix.

### Prices

- Average tuition and fees by sector by state
- Average tuition and fees by Carnegie classification within sectors
- Average room and board charges
- Housing and food prices by geographical area
- Textbook prices
- Net prices for students with different characteristics at different types of institutions
- Changes in college prices relative to prices of other goods and services

### Earnings

- Earnings by educational attainment for full-time workers, all workers, and members of the labor force
- Earnings by educational attainment by geographical area and by age
- Average earnings for different levels of educational attainment and the variation in earnings
- Expected earnings incorporating probabilities of completing different types of credentials for students in different circumstances

### Other resources

- Discretionary income
- Net worth by age, income, and other characteristics
- Saving rates
- Inequality of income and net worth

### Student debt

- Percentage of students with education debt and distribution of debt levels for students with different characteristics at different types of institutions
- Loan payments relative to earnings premium

## Section 7: Summary

To better understand and measure college affordability we should focus on students and what they can afford to pay for education. We should expect that students will rely on a combination of their own resources at the time they enroll, the expected earnings premium resulting from their postsecondary education, and the subsidies their parents should be able to provide.

There will never be one answer to how affordable college is or how that affordability is changing. Different educational opportunities come with a wide range of prices and the net prices individual students pay for the same institutions and programs also vary widely. Individuals and families have different preferences and priorities, making college expenses look very different even to students in similar financial circumstances.

But the complexity of the issue need not prevent the constructive collection and dissemination of data that paint a fairly complete picture of the financial accessibility of different postsecondary options for students in different circumstances.

A constructive next step would be to compile available data on the variables discussed in this paper and to analyze them and the relationships among them in a way that presents a coherent picture of college affordability over time.

# Endnotes

1 The College Board (2013), Annual Survey of Colleges.

2 Cooperative Institutional Research Program (CIRP) (2011), *Completing College: Assessing Graduation Rates at Four-Year Institutions*, HERI Research Brief, http://heri.ucla.edu/DARCU/CompletingCollege2011.pdf.

3 See, e.g. Vicki Choitz and Patrick Reimherr, *Mind the Gap: High Unmet Financial Need Threatens Persistence and Completion for Low-Income Community College Students*, CLASP, April 2013, http://www.clasp.org/resources-and-publications/publication-1/CLASP-Unmet-Need-Brief-041213-final-ab-2.pdf; TICAS, *Quick Facts About Financial Aid and Community Colleges, 2007-08*, May 2009, http://www.ticas.org/files/pub/cc_fact_sheet.pdf; Kevin Carey and Erin Dillon, *Drowning in Debt: The Emerging Student Loan Crisis*, Education Sector, July 8, 2009, http://www.educationsector.org/publications/drowning-debt-emerging-student-loan-crisis.

4 Unmet need is usually defined as in excess of federal student loans, in addition to grant aid. These loans might be taken as a rough approximation of the amount the student can reasonably be expected to contribute out of future earnings, but it is somewhat arbitrary to define affordability as based on the federal student loan limits, or on the amount of those loans the student chooses to take. Unmet need should probably be defined to account for federal tax credits, which diminish the price the student is actually paying for college, but this is not general practice.

5 http://collegecost.ed.gov/catc/.

6 Marc Joseph, September 17, 2013, http://www.huffingtonpost.com/marc-joseph/its-too-expensive-to-go-t_b_3935231.html.

7 Dylan Matthews, August 26, 2013, http://www.washingtonpost.com/blogs/wonkblog/wp/2013/08/26/introducing-the-tuition-is-too-damn-high/.

8 See, for example, the NCHEMS Information Center, http://www.higheredinfo.org/dbrowser/?level=nation&mode=map&state=0&submeasure=75.

9 About 61 percent of independent undergraduates with dependents had EFC=$0 in 2011-12 (National Center for Education Statistics [NCES], National Postsecondary Student Aid Study [NPSAS]: 2012, calculations from DataLab).

10 From a social perspective, the relevant issue is the increase in earnings (or the increased output) resulting from the education relative to the entire cost of providing that education. However, because the issue at hand is how much students (and families) can reasonably be expected to pay, we focus here only on the portion of the cost of education actually borne by students (and families), and not on the portion subsidized through tuition that is less than total cost or through financial aid.

11 The College Board (2013), *Trends in College Pricing 2013*, Table 2 and Table A2.

12 Bureau of Labor Statistics, Consumer Expenditure Survey, 2011–2012 Current Cross-Tabulated Tables, Age of reference person by income before taxes, under 25, Table 3600, http://www.bls.gov/cex/2012/CrossTabs/sizbyage/aone.PDF.

13 NCES, NPSAS: 2012, calculations from DataLab.

14 Sources: *The College Board, Trends in College Pricing 2013*, online Table 2; U.S. Census Bureau, Median and Average Sales Prices of New Homes Sold in the United States, http://www.census.gov/const/uspricemon.pdf.

15 The reality is more complicated, since houses are almost always financed through mortgages and interest rates also vary considerably over time, altering the monthly payments associated with any house price.

16 Source: Bureau of Labor Statistics, Consumer Price Index Customized Tables, http://data.bls.gov/cgi-bin/dsrv?cu.

17 Archibald and Feldman argue that college has not actually become less affordable as its price has risen relative to family incomes and to other goods and services. "Over any given span of years, once you account for all price changes and all changes in family income, can a family purchase

the exact same set of goods and services as before, and have more money left over to buy other things? If so, then no one is "forced" to drop out of college or to trade down to lower-priced educational alternatives. They may choose to attend different types of schools as the relative price of public versus private education changes, or as college tuition rises relative to automobiles or televisions. But if you can purchase the exact same basket of goods and services and then some, you are better off." Robert Archibald and David Feldman, *The Anatomy of College Tuition*, American Council on Education, 2012, http://www.acenet.edu/news-room/Documents/Anatomy-of-College-Tuition.pdf.

18 The College Board (2013), *Trends in Student Aid 2013,* Figure 16a.

19 http://oregonwfp.org/issues/debt-free-higher-education/. Bills in the U.S. Senate and House of Representatives make similar proposals for the nation (http://www.merkley.senate.gov/newsroom/press/release/?id=bb43fdf2-2a1d-4c7c-ba4f-eac1243f0670; https://www.govtrack.us/congress/bills/113/hr3959/text).

20 In 1978, BLS convened an expert committee to study the concept of family budgets. The group recommended a descriptive approach to developing a "prevailing family standard" set at the median level of expenditures for families of four with two children. The "lower living standard" is two-thirds of that level and the "social minimum" is one half. The "social abundance standard" is 50 percent higher than the prevailing standard. A National Research Council panel also recommended tying budget standards to median expenditures (David Johnson, John Rogers, and Lucilla Tan, "A Century of Family Budgets in the United States," *Monthly Labor Review*, May 2001, http://www.bls.gov/opub/mlr/2001/05/art3full.pdf.)

21 Economic Policy Institute, http://www.epi.org/resources/budget/.

22 Choosing this percentage is arbitrary and it may be more reasonable to assume that at higher income levels, families can contribute a greater percentage of discretionary income while still sacrificing less utility than lower-income families.

23 When asked how much their parents have helped them with their tuition and living expenses while they are in school, on average students from families with incomes below $30,000 report that their parents have contributed more than the calculated EFC, while those from higher-income families report parental support far lower than EFCs (NCES, NPSAS: 2012, calculations from DataLab).

24 Dylan, Skinner, and Zeldes (2004), Do the Rich Save More? *Journal of Political Economy*, 112(2), 397–444, Table 3, https://www.dartmouth.edu/~jskinner/documents/DynanKEDotheRich.pdf.

25 U.S. Census Bureau, Income, Poverty and Health Insurance in the United States: 2012, PINC-03, http://www.census.gov/hhes/www/cpstables/032013/perinc/pinc03_000.htm; calculations by the authors.

26 This example and the one shown in Table 9 are based on all workers between the ages of 25 and 34. They are illustrative and more precise estimates would require incorporating earnings differentials at older ages.

27 Source: NCES, NPSAS: 2012.

28 For detailed discussion of the variation in post-college earnings, see Sandy Baum, Charles Kurose, and Jennifer Ma (2013), *How College Shapes Lives: Understanding the Issues*, The College Board.

## Appendix: Additional Examples of Potential Indicators of College Affordability

This Appendix includes examples of the types of indicators that should be included in a comprehensive measure of college affordability. Other indicators are in Figures 1 through 5 and Tables 1 through 9 in the body of the paper.

## Table A1: Average Published Tuition and Fees and Room and Board in 2013 Dollars, by Sector, 1983-84 to 2013-14

| | Tuition and Fees in 2013 Dollars | | | Room and Board in 2013 Dollars | |
|---|---|---|---|---|---|
| | Private Nonprofit Four-Year | Public Four-Year | Public Two-Year | Private Nonprofit Four-Year | Public Four-Year |
| 1983-84 | $11,909 | $2,684 | $1,235 | $6,234 | $5,343 |
| 1988-89 | $15,778 | $3,111 | $1,575 | $7,207 | $5,671 |
| 1993-94 | $17,806 | $4,101 | $2,014 | $7,746 | $5,948 |
| 1998-99 | $21,054 | $4,648 | $2,224 | $8,236 | $6,473 |
| 2003-04 | $24,071 | $5,900 | $2,425 | $9,028 | $7,475 |
| 2008-09 | $26,356 | $7,008 | $2,530 | $9,539 | $8,255 |
| 2013-14 | $30,094 | $8,893 | $3,264 | $10,823 | $9,498 |
| 1983-84 to 1993-94 | 50% | 53% | 63% | 24% | 11% |
| 1993-94 to 2003-04 | 35% | 44% | 20% | 17% | 26% |
| 2003-04 to 2013-14 | 25% | 51% | 35% | 20% | 27% |
| 2003-04 to 2008-09 | 9% | 19% | 4% | 6% | 10% |
| 2008-09 to 2013-14 | 14% | 27% | 29% | 13% | 15% |

**Source:** The College Board, *Trends in College Pricing 2013*, online Table 2.

## Table A2: Average Published and Net Tuition and Fees (TF) in 2013 Dollars, by Sector, 1993-94 to 2013-14

| | Public Two-Year In-State | | Public Four-Year In-State | | Private Nonprofit Four-Year | |
|---|---|---|---|---|---|---|
| | Published TF | Net TF | Published TF | Net TF | Published TF | Net TF |
| 1993-94 | $2,010 | $600 | $4,100 | $2,040 | $17,810 | $10,230 |
| 1994-95 | $2,060 | $580 | $4,260 | $2,020 | $18,450 | $10,490 |
| 1995-96 | $2,040 | $470 | $4,310 | $1,930 | $18,710 | $10,530 |
| 1996-97 | $2,180 | $520 | $4,430 | $1,980 | $19,330 | $10,990 |
| 1997-98 | $2,280 | $300 | $4,530 | $1,810 | $20,060 | $11,220 |
| 1998-99 | $2,220 | -$230 | $4,650 | $1,560 | $21,050 | $11,640 |
| 1999-2000 | $2,310 | -$260 | $4,710 | $1,500 | $21,750 | $12,070 |
| 2000-01 | $2,220 | -$380 | $4,740 | $1,380 | $21,730 | $12,010 |
| 2001-02 | $2,120 | -$580 | $4,960 | $1,390 | $22,870 | $13,080 |
| 2002-03 | $2,170 | -$580 | $5,320 | $1,520 | $23,420 | $13,410 |
| 2003-04 | $2,420 | -$420 | $5,900 | $1,920 | $24,070 | $13,600 |
| 2004-05 | $2,560 | -$230 | $6,320 | $2,210 | $24,720 | $13,860 |
| 2005-06 | $2,610 | -$50 | $6,570 | $2,460 | $25,080 | $13,910 |
| 2006-07 | $2,600 | $30 | $6,660 | $2,450 | $25,610 | $14,110 |
| 2007-08 | $2,570 | $20 | $6,940 | $2,590 | $26,260 | $14,320 |
| 2008-09 | $2,530 | -$400 | $7,010 | $2,420 | $26,360 | $13,550 |
| 2009-10 | $2,790 | -$1,250 | $7,670 | $1,940 | $27,920 | $12,420 |
| 2010-11 | $2,940 | -$1,680 | $8,170 | $2,070 | $28,680 | $11,730 |
| 2011-12 | $3,070 | -$1,680 | $8,560 | $2,820 | $28,830 | $11,550 |
| 2012-13 | $3,220 | -$1,590 | $8,820 | $3,050 | $29,560 | $11,930 |
| 2013-14 | $3,260 | -$1,550 | $8,890 | $3,120 | $30,090 | $12,460 |

**Note:** Numbers have been rounded to the nearest $10.

**Source:** The College Board, *Trends in College Pricing 2013*, online Tables 7 and 8.

## Table A3: Average Published and Net Tuition and Fees (TF) and Cost of Attendance (COA) in 2011 Dollars, by Sector and Family Income Quartile of Full-Time Dependent Students, 1999-2000 to 2011-12

| | Public Two-Year | | | | Public Four-Year | | | |
|---|---|---|---|---|---|---|---|---|
| **Lowest Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Net COA | $7,672 | $7,656 | $7,752 | $8,065 | $9,620 | $10,280 | $10,590 | $11,854 |
| Published TF | $1,949 | $2,122 | $2,404 | $2,608 | $4,939 | $6,200 | $6,687 | $8,256 |
| Published COA | $11,160 | $11,730 | $12,434 | $13,756 | $15,467 | $17,643 | $19,277 | $21,689 |
| **Second Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $530 | $328 | $502 | $0 | $1,785 | $2,175 | $1,473 | $2,325 |
| Net COA | $9,746 | $9,746 | $10,614 | $10,942 | $12,498 | $13,621 | $13,785 | $15,832 |
| Published TF | $2,290 | $2,389 | $2,580 | $2,854 | $5,478 | $6,458 | $7,153 | $8,992 |
| Published COA | $11,506 | $11,807 | $12,693 | $14,103 | $16,191 | $17,904 | $19,465 | $22,498 |
| **Third Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $1,509 | $1,700 | $1,963 | $1,900 | $4,114 | $4,482 | $5,066 | $6,417 |
| Net COA | $11,041 | $11,482 | $12,409 | $13,292 | $15,059 | $16,069 | $17,631 | $20,086 |
| Published TF | $2,157 | $2,542 | $2,709 | $2,950 | $5,863 | $6,690 | $7,730 | $9,384 |
| Published COA | $12,201 | $12,324 | $13,155 | $14,343 | $16,807 | $18,277 | $20,294 | $23,053 |
| **Highest Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $1,538 | $1,812 | $2,114 | $2,051 | $5,067 | $5,797 | $6,610 | $8,346 |
| Net COA | $11,239 | $11,521 | $12,760 | $13,795 | $16,284 | $17,840 | $19,639 | $22,525 |
| Published TF | $1,980 | $2,495 | $2,602 | $2,867 | $6,509 | $7,587 | $8,682 | $10,921 |
| Published COA | $11,681 | $12,205 | $13,248 | $14,611 | $17,726 | $19,630 | $21,711 | $25,101 |

| | Private Nonprofit Four-Year | | | | For-Profit | | | |
|---|---|---|---|---|---|---|---|---|
| **Lowest Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $4,387 | $6,688 | $6,370 | $4,971 | $6,676 | $7,424 | $9,880 | $11,297 |
| Net COA | $14,735 | $18,348 | $18,702 | $19,360 | $18,411 | $18,345 | $22,127 | $24,173 |
| Published TF | $16,542 | $20,117 | $22,797 | $27,798 | $11,357 | $14,115 | $14,802 | $17,630 |
| Published COA | $26,890 | $31,777 | $35,130 | $42,187 | $23,093 | $25,036 | $27,050 | $30,506 |
| **Second Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $8,553 | $9,660 | $10,191 | $8,609 | $9,891 | $10,692 | $14,874 | $13,718 |
| Net COA | $19,809 | $21,498 | $22,633 | $22,748 | $21,827 | $21,860 | $27,662 | $27,063 |
| Published TF | $20,374 | $22,168 | $25,050 | $28,964 | $12,949 | $14,614 | $17,585 | $17,931 |
| Published COA | $31,630 | $34,006 | $37,492 | $43,103 | $24,884 | $25,782 | $30,373 | $31,276 |
| **Third Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $11,383 | $12,875 | $14,703 | $13,974 | $12,969 | $12,658 | $16,811 | $18,046 |
| Net COA | $22,893 | $24,855 | $27,485 | $28,519 | $24,450 | $24,340 | $30,345 | $32,012 |
| Published TF | $21,717 | $23,442 | $26,677 | $29,363 | $14,126 | $14,836 | $17,738 | $19,291 |
| Published COA | $33,226 | $35,422 | $39,459 | $43,908 | $26,764 | $26,518 | $31,273 | $33,257 |
| **Highest Income Quartile** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** | **1999-2000** | **2003-04** | **2007-08** | **2011-12** |
| Net TF | $17,769 | $19,510 | $20,339 | $19,724 | $14,076 | $13,830 | $17,578 | $17,463 |
| Net COA | $29,763 | $31,973 | $33,745 | $34,962 | $27,462 | $26,492 | $34,028 | $33,044 |
| Published TF | $24,097 | $26,986 | $28,822 | $32,213 | $14,929 | $15,384 | $17,740 | $19,335 |
| Published COA | $36,091 | $39,449 | $42,228 | $47,451 | $28,316 | $28,046 | $34,189 | $34,916 |

**Note:** Grant aid includes grants from all sources and veterans' benefits, but not federal tax credits and deductions. Income categories for each year: lowest: less than $30,000; second: $30,000 to $64,999; third: $65,000 to $105,999; highest: $106,000 or higher (all in 2011 dollars). Because of the small sample size, grant aid estimates for the highest-income group in the for-profit sector are unstable and should be interpreted with caution. **Source:** NCES, NPSAS: 2000, 2004, 2008, and 2012.

## Table A4: Average Published In-State Tuition and Fees in 2013 Dollars at Public Four-Year Institutions, by State, 2008-09 and 2013-14

| | 2013-14 | 2008-09 | Five-Year Percentage Increase | Five-Year Dollar Increase in 2013 Dollars |
|---|---|---|---|---|
| **U.S.** | **$8,893** | **$7,008** | **27%** | **$1,885** |
| Alaska | $5,885 | $4,968 | 18% | $917 |
| Alabama | $9,143 | $6,338 | 44% | $2,805 |
| Arizona | $10,065 | $5,930 | 70% | $4,135 |
| Arkansas | $7,238 | $6,281 | 15% | $957 |
| Arizona | $10,065 | $5,930 | 70% | $4,135 |
| California | $9,037 | $5,773 | 57% | $3,264 |
| Colorado | $9,096 | $6,151 | 48% | $2,945 |
| Connecticut | $10,206 | $8,536 | 20% | $1,670 |
| Delaware | $11,261 | $8,805 | 28% | $2,456 |
| Florida | $6,336 | $4,062 | 56% | $2,274 |
| Georgia | $7,823 | $4,729 | 65% | $3,094 |
| Hawaii | $9,097 | $6,184 | 47% | $2,913 |
| Iowa | $7,841 | $6,832 | 15% | $1,009 |
| Idaho | $6,325 | $4,898 | 29% | $1,427 |
| Illinois | $12,550 | $10,642 | 18% | $1,908 |
| Indiana | $8,916 | $7,670 | 16% | $1,246 |
| Kansas | $7,729 | $6,382 | 21% | $1,347 |
| Kentucky | $8,692 | $7,231 | 20% | $1,461 |
| Louisiana | $6,546 | $4,325 | 51% | $2,221 |
| Massachusetts | $10,792 | $8,750 | 23% | $2,042 |
| Maryland | $8,475 | $7,850 | 8% | $625 |
| Maine | $9,391 | $8,579 | 9% | $812 |
| Michigan | $11,600 | $9,696 | 20% | $1,904 |
| Minnesota | $10,468 | $8,832 | 19% | $1,636 |
| Missouri | $8,093 | $7,676 | 5% | $417 |
| Mississippi | $6,558 | $5,254 | 25% | $1,304 |
| Montana | $6,211 | $5,667 | 10% | $544 |
| North Carolina | $6,514 | $4,663 | 40% | $1,851 |
| North Dakota | $7,265 | $6,485 | 12% | $780 |
| Nebraska | $7,315 | $6,325 | 16% | $990 |
| New Hampshire | $14,665 | $10,931 | 34% | $3,734 |
| New Jersey | $12,715 | $11,414 | 11% | $1,301 |

| | 2013-14 | 2008-09 | Five-Year Percentage Increase | Five-Year Dollar Increase in 2013 Dollars |
|---|---|---|---|---|
| New Mexico | $5,987 | $4,800 | 25% | $1,187 |
| Nevada | $6,387 | $4,669 | 37% | $1,718 |
| New York | $6,919 | $5,438 | 27% | $1,481 |
| Ohio | $9,906 | $8,999 | 10% | $907 |
| Oklahoma | $6,583 | $5,991 | 10% | $592 |
| Oregon | $8,605 | $6,626 | 30% | $1,979 |
| Pennsylvania | $12,802 | $10,995 | 16% | $1,807 |
| Rhode Island | $10,922 | $8,206 | 33% | $2,716 |
| South Carolina | $11,138 | $9,698 | 15% | $1,440 |
| South Dakota | $7,717 | $6,051 | 28% | $1,666 |
| Tennessee | $8,036 | $6,038 | 33% | $1,998 |
| Texas | $8,522 | $7,348 | 16% | $1,174 |
| Utah | $5,906 | $4,540 | 30% | $1,366 |
| Virginia | $10,366 | $8,051 | 29% | $2,315 |
| Vermont | $13,958 | $12,044 | 16% | $1,914 |
| Washington | $10,811 | $6,832 | 58% | $3,979 |
| Wisconsin | $8,736 | $7,217 | 21% | $1,519 |
| West Virginia | $6,251 | $4,999 | 25% | $1,252 |
| Wyoming | $4,404 | $3,845 | 15% | $559 |

**Source:** The College Board, *Trends in College Pricing 2013*, online Table 5.

## Table A5: Median Earnings of Full-Time Workers Ages 25 to 34 by Gender and Educational Attainment, 1971 to 2011, Selected Years

| | Men | | | Women | | | BA/HS | | Male/Female | |
|---|---|---|---|---|---|---|---|---|---|---|
| | High School Diploma (including GED) | Some College or Associate Degree | Bachelor's Degree or Higher | High School Diploma (including GED) | Some College or Associate Degree | Bachelor's Degree or Higher | Men | Women | HS | BA or Higher |
| 1971 | $51,406 | $55,945 | $64,041 | $31,530 | $35,946 | $45,133 | 1.25 | 1.43 | 1.63 | 1.42 |
| 1976 | $49,170 | $53,343 | $59,497 | $31,647 | $35,369 | $43,132 | 1.21 | 1.36 | 1.55 | 1.38 |
| 1981 | $44,233 | $47,916 | $55,395 | $29,087 | $33,174 | $40,673 | 1.25 | 1.40 | 1.52 | 1.36 |
| 1986 | $42,029 | $48,051 | $59,911 | $29,727 | $34,325 | $45,050 | 1.43 | 1.52 | 1.41 | 1.33 |
| 1991 | $37,152 | $43,740 | $58,088 | $28,824 | $34,265 | $44,880 | 1.56 | 1.56 | 1.29 | 1.29 |
| 1996 | $36,602 | $40,875 | $55,289 | $27,634 | $32,426 | $43,622 | 1.51 | 1.58 | 1.32 | 1.27 |
| 2001 | $37,147 | $44,504 | $60,852 | $28,517 | $33,375 | $47,800 | 1.64 | 1.68 | 1.30 | 1.27 |
| 2006 | $35,203 | $40,830 | $56,945 | $26,363 | $32,430 | $46,597 | 1.62 | 1.77 | 1.34 | 1.22 |
| 2011 | $32,891 | $40,347 | $55,592 | $26,884 | $30,726 | $45,743 | 1.69 | 1.70 | 1.22 | 1.22 |
| 1971 to 1981 | -14% | -14% | -14% | -8% | -8% | -10% | | | | |
| 1981 to 1991 | -16% | -9% | 5% | -1% | 3% | 10& | | | | |
| 1991 to 2001 | 0% | 2% | 5% | -1% | -3% | 7% | | | | |
| 2001 to 2011 | -11% | -9% | -9% | -6% | -8% | -4% | | | | |
| 2001 to 2006 | -5% | -8% | -6% | -8% | -3% | -3% | | | | |
| 2006 to 2011 | -7% | -1% | -2% | 2% | -5% | -2% | | | | |

**Source:** Baum, Ma, and Payea (2013), *Education Pays 2013: The Benefits of Higher Education for Individuals and Society*, The College Board.

## Table A6: Average Total Debt Levels in 2012 Dollars, Bachelor's Degree Recipients at Public and Private Nonprofit Four-Year Colleges and Universities, 1999-2000 to 2011-12

| | Per Borrower | Per Bachelor's Degree Recipient | Percentage who Borrowed |
|---|---|---|---|
| **Public Four-Year** | | | |
| 1999-00 | $20,800 | $11,200 | 54% |
| 2000-01 | $20,400 | $10,600 | 52% |
| 2001-02 | $20,500 | $10,600 | 52% |
| 2002-03 | $20,900 | $11,000 | 53% |
| 2003-04 | $21,000 | $11,400 | 54% |
| 2004-05 | $21,500 | $11,800 | 55% |
| 2005-06 | $21,800 | $12,100 | 55% |
| 2006-07 | $21,500 | $11,900 | 55% |
| 2007-08 | $21,500 | $11,900 | 55% |
| 2008-09 | $21,100 | $11,700 | 55% |
| 2009-10 | $23,200 | $13,000 | 56% |
| 2010-11 | $24,200 | $13,900 | 57% |
| 2011-12 | $25,000 | $14,300 | 57% |
| **Five-Year Percentage Change** | | | |
| 2001-02 to 2006-07 | 5% | 12% | |
| 2006-07 to 2011-12 | 16% | 20% | |
| **Private Nonprofit Four-Year** | | | |
| 1999-00 | $23,800 | $15,000 | 63% |
| 2000-01 | $23,700 | $14,800 | 63% |
| 2001-02 | $24,200 | $15,400 | 64% |
| 2002-03 | $25,400 | $16,100 | 63% |
| 2003-04 | $25,900 | $16,500 | 64% |
| 2004-05 | $27,500 | $17,700 | 64% |
| 2005-06 | $28,600 | $18,600 | 65% |
| 2006-07 | $28,700 | $19,000 | 66% |
| 2007-08 | $27,800 | $18,200 | 65% |
| 2008-09 | $27,800 | $18,000 | 65% |
| 2009-10 | $29,300 | $19,200 | 66% |
| 2010-11 | $30,400 | $20,000 | 66% |
| 2011-12 | $29,900 | $19,500 | 65% |
| **Five-Year Percentage Change** | | | |
| 2001-02 to 2006-07 | 19% | 23% | |
| 2006-07 to 2011-12 | 4% | 3% | |

**Source:** The College Board, *Trends in Student Aid 2013*, Figures 10a and 10b.

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