Low-Income Students at Selective Colleges

DISAPPEARING OR HOLDING STEADY?

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Executive Summary

Alarming stories about increasing economic stratification at America's selective colleges frequently appear in the news media. But this genre of education journalism comes with several caveats. Much of the research on economic stratification at selective colleges relies on data with limitations that tend to restrict how comprehensively or accurately studies can assess the incomes of students enrolled at selective universities, particularly over time. Studies that use quality data tend to find that the share of students at selective colleges who are low income has remained remarkably stable since the turn of the century. But even these often suffer from a narrow scope, such as outlier universities or the Ivy League.

In this report, we set out to address some of the limitations in the literature on enrollment at selective universities and test the popular narratives related to this topic. We use a data set that few researchers have enlisted for this type of analysis, the National Postsecondary Student Aid Study, and we define selective colleges as the 200 most selective public and private institutions nationally. We also conduct a separate analysis for public flagship universities.

We do not find evidence that the share of students enrolled at these 200 institutions who are from the lowest income quartile declined during the years covered in our study. Students from high-income families were a growing share of enrollment at these institutions in the mid-2000s. Meanwhile, the share of students at selective colleges who are from middle-income families has steadily declined over time, particularly students from the third income quartile.

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Alarming stories about economic stratification at America's selective colleges are everywhere. The Jack Kent Cooke Foundation ran a headline on its website in 2017 stating, "Report finds flagship universities becoming instruments of social stratification."[1] In earlier research, the Education Trust concluded that elite public universities were becoming "engines of inequality" because they were enrolling fewer students from low-income families.[2] A recent study by the Pell Institute for the Study of Opportunity in Higher Education "adds to the growing body of evidence that our nation's higher education system is becoming increasingly stratified," according to one reporter.[3] When the *New York Times* covered this issue in 2017, the headline read, "Some [private] colleges have more students from the top 1 percent than the bottom 60."[4]

Most of these reports and articles focus on trends that the authors say contribute to declining access at selective colleges for students from low-income families. They implicitly link cuts in per-student funding for public universities,[5] increasing merit-based financial aid,[6] rising tuition prices, more competitive admissions standards, and a boost in out-of-state students to conclude that the share of students at selective schools who are from low-income families must be in decline.[7]

It is logical to assume that such trends would work against low-income students' representation at America's most elite colleges. And it is easy to believe reports that find increasing economic stratification at selective universities given that the total cost of attendance has increased rapidly. Admission rates have also declined at some of these institutions, suggesting that they have grown only more competitive.

But narratives surrounding low-income students' representation at selective schools often rely on incomplete evidence. Data limitations tend to restrict how comprehensively or accurately studies can assess the incomes of students enrolled at selective colleges and universities, particularly over time.[8] Even when data are available, reports and research often focus on outlier examples or a small number of institutions, such as the Ivy League.

Some studies do take a comprehensive approach, however, and generally find that the share of students at selective colleges who are from low-income families has changed little since the early 2000s. We review the existing literature on the income distribution of students at selective colleges in a later section.

In this report, we set out to address some of the limitations in the literature on enrollment at selective colleges and universities. We also aim to test the popular narratives, such as whether students from low-income families are in fact less represented at selective colleges than in the past; whether public flagship universities are shutting out low-income students to enroll more high-income, out-of-state students; and whether rising prices have made selective colleges less affordable for low-income students after factoring in financial aid.

We use a data set that few researchers have enlisted for this type of analysis: the National Postsecondary Student Aid Study (NPSAS). The NPSAS is a nationally representative data set of undergraduate college students maintained by the US Department of Education.[9] An advantage of the NPSAS is that we can more directly observe the family incomes of students instead of using proxies such as whether students received Pell Grants. The NPSAS allows us to cover a long time period, the 1999–2000 to the 2015–16 academic years. We focus our analysis on the students who attended the 200 most selective public and private colleges and universities in the country by admission rates and test scores.[10]

We find that, contrary to popular perceptions, the share of students at the 200 most selective colleges who are from low-income families did not decline over the period we studied. Also at odds with popular perceptions, the share of low-income students at public flagship universities has not declined since 1999–2000. This suggests that the trends that many argue have pushed low-income students out of selective colleges, such as rising prices and increases in out-of-state enrollment, have not had that effect on a national level.

We also find that, after factoring in grant and scholarship aid, annual net tuition prices at selective colleges have increased by only $1,358 for low-income students since 1999–2000, after adjusting for inflation. For high-income students, the increase was $8,162.

Consistent with the popular narrative, we find evidence that the share of students who are from high-income families increased at both selective institutions and public flagship universities during the mid-2000s. However, due to data limitations, it is unclear whether these trends continued or reversed in later years.

The strongest trend in the data is a decline in the share of students in the middle two income quartiles. In other words, the enrollment gains of high-income students in the mid-2000s came at the expense of middle-income students. This trend has received relatively little attention from the education community and the national media. It suggests that the narrative regarding income stratification at selective colleges is only half right. Enrollment at selective colleges has changed over time, but it is middle-income students, not low-income students, who are becoming less represented on these campuses.

Data and Methodology

To examine how the share of students enrolled at selective colleges from different income groups has evolved over time, we turn to the NPSAS. The quadrennial NPSAS gives us five snapshots of the college-going population over the past 16 years, covering the academic years 1999–2000, 2003–04, 2007–08, 2011–12, and 2015–16.

Household Income. The NPSAS includes data on student incomes from one year before the stated academic year. (For example, the 2015–16 NPSAS contains 2014 income data.) For dependent students, the income of the student's parents is used. For independent students, the student's own income is used.[11]

We divide students into income quartiles based on the aggregate income distribution of American households during the year in which income was measured. To be in the bottom income quartile in the 1999–2000 academic year, a student's income must be below $19,791, since that was the 25th percentile income for American households in 1998. For the 2015–16 year, the bottom income quartile ends at $25,948, and the top quartile begins at $98,810. We refer to the bottom and top quartiles as "low income" and "high income," respectively. Income cutoffs for all years and quartiles are available in Appendix A.

This definition causes the absolute income cutoffs between our groups to vary each year but allows us to gauge how the distribution of students at selective colleges reflects the country at large. If each household income quartile were perfectly represented at selective colleges, then each quartile would account for 25 percent of the students enrolled. Therefore, an income group with less than 25 percent of students at the colleges is underrepresented.[12]

Selectivity Definition. We define selective colleges as the 200 most selective public and private institutions nationally. Our list of selective schools does not change. That is, the group includes the institutions that have consistently been the most selective over the time period studied.

To rank schools by selectivity, we calculate the average acceptance rate and the typical SAT/ACT score of enrolled students at each institution over a 15-year period (2001–16).[13] We then create a comprehensive rank of every four-year public and private nonprofit college with sufficient data, weighting acceptance rate and typical SAT/ACT score evenly.[14] We define the top 200 schools according to this ranking as selective. These institutions enrolled just 13 percent of undergraduates nationally who meet the criteria for our analysis (discussed below).[15] The full list of schools defined as selective is available in Appendix B.

For our analysis of public flagship universities, we include the one institution per state generally considered to be the flagship campus, which is not always the most selective public institution in that state. Only 12 of the public flagship institutions are also among the 200 most selective universities. A list of the 50 flagship schools is available in Appendix C.

Student Subsample. We limit the sample for our analysis to students enrolled in a bachelor's degree program, thereby excluding the small number of students enrolled at selective institutions who are pursuing short-term credentials such as certificates. We also exclude all international students (but include noncitizen residents of the United States). These are the only two exclusions for the analysis. We do not restrict the sample by age or enrollment intensity (i.e., part time versus full time).

We do, however, separate our results into two categories: dependent students (i.e., dependents of their parents while enrolled) and all students regardless of dependency status (i.e., including independent students). This twofold approach allows us to examine students whose parental income can be observed but also separately factor in independent students for whom parental income cannot be observed and whose own income is reported in the data. Including independent students captures the widest possible population of students enrolled in bachelor's degree programs and makes no distinctions as to whether the students are "traditional."

At the 200 most selective institutions in 2015–16, 16.1 percent of students were independent, which is about the same share as in 1999–2000 and 2003–04 but higher than in 2007–08 and 2011–12.[16] In 2015–16, 69 percent of students at these schools attended exclusively full time, the lowest share of any year in this analysis.[17]

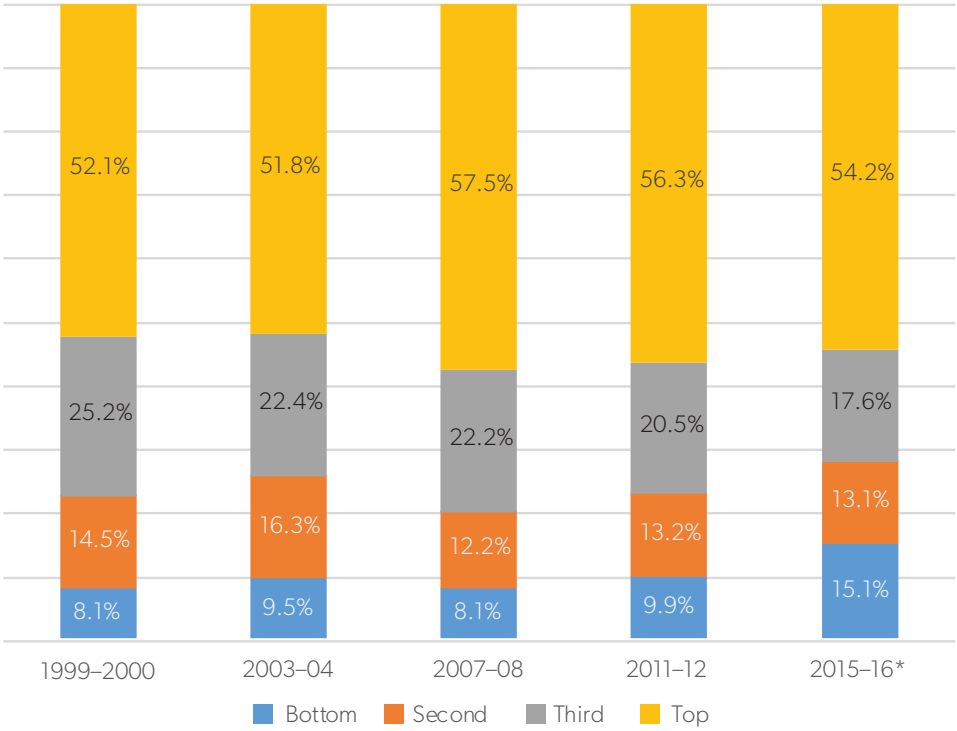
Strengths and Limitations of the NPSAS Data. The NPSAS includes a large sample of the 200 most selective institutions, as well as flagship institutions. It sampled between 80 and 120 of the 200 most selective institutions, depending on the year, with the largest sample of institutions taken in 2015–16. The number of students sampled at these institutions ranges from 3,520 to 6,770, depending on the year.[18] The data sets include a sample of about 40 flagship universities, with the student sample size ranging from 3,990 to 5,910.[19] More detailed information is provided in Appendix D.

Because the NPSAS is a random sample of undergraduates, it does not include data for students at every higher education institution. It is, however, representative of the undergraduate population nationally and students attending broad categories of institutions, such as public four-year institutions or private nonprofit institutions.

While the data set includes a variable for the institution's selectivity, it is a broad measure of selectivity. The most selective category enrolls between 20 and 23 percent of students pursuing bachelor's degrees.[20] We therefore do not use this variable and instead create our own measure of selectivity.

Despite being representative of undergraduates and broad sectors of institutions—and even though it includes a selectivity variable—the NPSAS is not designed to be representative of the students attending the 200 most selective institutions or public flagship institutions. As a result, our study may not be representative of the nation's 200 most selective

Figure 1. Enrollment at the 200 Most Selective Colleges and Universities by Income Quartile and Year (Dependent Students)



Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

institutions or flagship universities and should be interpreted with that limitation in mind.

We do have reason to suspect that low-income students at the 200 most selective institutions may be overrepresented in the 2015–16 NPSAS. According to data in the Integrated Postsecondary Education Data System (IPEDS), 22 percent of undergraduates at the 200 most selective institutions received Pell Grants in 2015–16.[21] However, using the NPSAS we find that this share was 28 percent in 2015–16. We observe a similar phenomenon for flagship institutions. While "Pell share" has severe limitations as a proxy for low-income student enrollment, the discrepancy between the IPEDS and NPSAS estimates for 2015–16 suggests that lower-income students may be overrepresented in the 2015–16 NPSAS subsamples of selective and flagship institutions. For this reason, we advise interpreting our 2015–16 estimates with caution.

The data on student and family incomes in the NPSAS come from administrative records for students who filed a Free Application for Federal Student Aid (FAFSA). That form mainly uses income information from respondents' federal tax returns. For students who did not file a FAFSA, income information is collected during an interview with the student (and the student's parents in the case of dependent students).

Results: Enrollment at Selective Colleges by Income

Figure 1 shows the share of dependent students from each income group enrolled at the 200 most selective colleges from 1999–2000 to 2015–16. We do not find evidence that the share of dependent students enrolled at these institutions who are low income

declined during the 16 years covered in our study.[22] In the first year of the study, 8.1 percent of dependent students enrolled at selective colleges came from families in the lowest income quartile. That proportion holds fairly steady for the next 12 years but jumps 7 percentage points in 2015–16.[23] (Again, we advise interpreting the 2015–16 figures with caution.) The average score on college admissions tests among low-income students at these institutions did not decline during the study period, suggesting that these institutions did not lower this key admission standard to enroll more low-income students.[24]

Meanwhile, the share of dependent students enrolled at these institutions who are from the top income quartile increased between 2003–04 and 2007–08. While these students made up 52.1 percent of the student body at selective colleges in 1999–2000, their share increased markedly after 2003–04 to 57.5 percent in 2007–08, and the figure is similar for 2011–12. While it appears these students' share of enrollment then declined in 2015–16, we interpret that change with caution given the likely overrepresentation of low-income students in the sample that year.

The increase in the share of dependent students at selective colleges who are high income in the mid-2000s appears to have come at the expense of students from the middle two income quartiles. Most of that change can be observed in the third income quartile. Earnings for the third quartile in 2015–16 were between $53,600 and $98,810. That group shrank from 25.2 percent of dependent students enrolled at selective colleges in 1999–2000 to 20.5 percent in 2011–12, the most of any income quartile. The change is statistically significant. The group's relative share declines even further in 2015–16 to 17.6 percent, but we interpret that result with caution given the likely overrepresentation of low-income students at selective colleges that year.

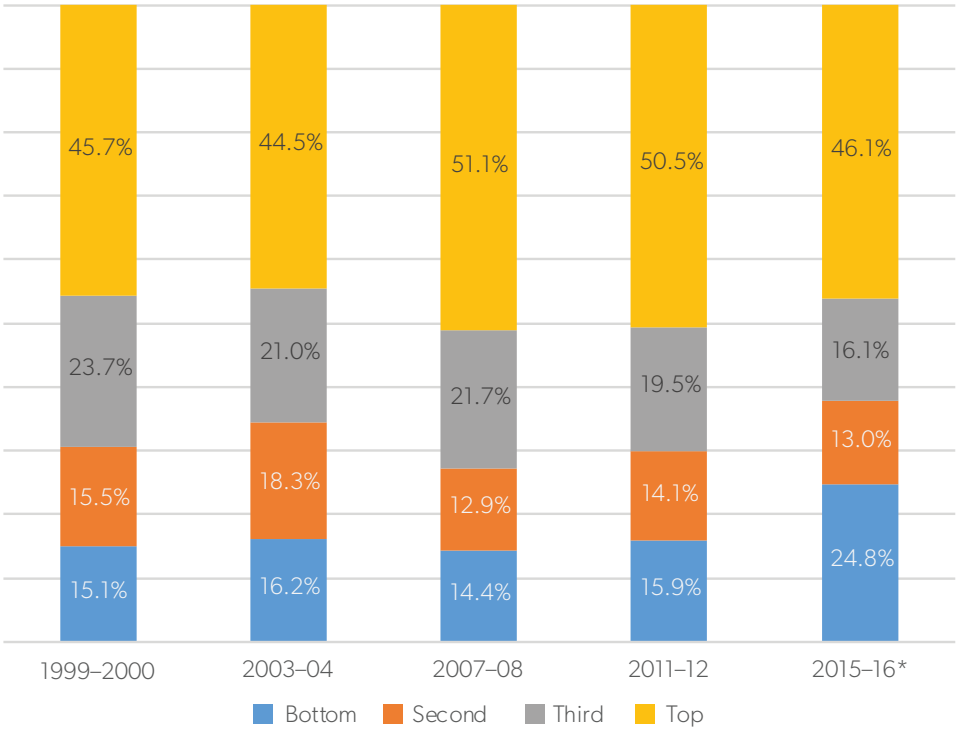
Dependent and Independent Students. Figure 2 shows a similar chart but includes both dependent and independent students from each income group enrolled at the 200 most selective colleges from 1999–2000 to 2015–16. This cut of the data helps illustrate the effect of including independent students in our analysis.

Some data sets and analyses exclude independent students when examining enrollment at selective universities.[25] That may be because data on these students' incomes are not readily available or because the available data reflect their own incomes, not those of their parents, which is the case for the NPSAS. Thus, the incomes of independent and dependent students are not necessarily comparable. However, we include both types of students as a second part of our analysis for a more comprehensive view of enrollment at selective institutions.

Including independent students increases the estimated share of low-income students at selective colleges. More important for our analysis is that the *trend* is the same as it is for dependent students: Among all students, we do not find evidence that the lowest quartile's share of students enrolled at selective colleges has declined. Another finding—that middle-class students lose enrollment share to high-income students—also holds when we expand the analysis to include both dependent and independent students. The decline for the third quartile is statistically significant between 1999–2000 and 2011–12 (shown in Appendix E).[26] The declines for the two middle quartiles are statistically significant between 1999–2000 and 2015–16, but the likely overrepresentation of low-income students makes it difficult to draw definitive conclusions about that trend.

Appendixes F–M include a number of alternative cuts of the same data, such as limiting the analysis to the 150 most selective institutions, the 250 most selective institutions, or the top two selectivity categories in the Barron's *Profiles of American Colleges*, as well as cuts by income quintile instead of quartile. None of these alternative cuts change our main findings. Appendixes N and O include enrollment by quartile for the population in our analysis (those enrolled in bachelor's degree programs who are US citizens or legal residents) at all institutions of higher education, providing a baseline comparison of enrollment trends.

Figure 2. Enrollment at the 200 Most Selective Colleges and Universities by Income Quartile and Year (Dependent and Independent Students)



Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

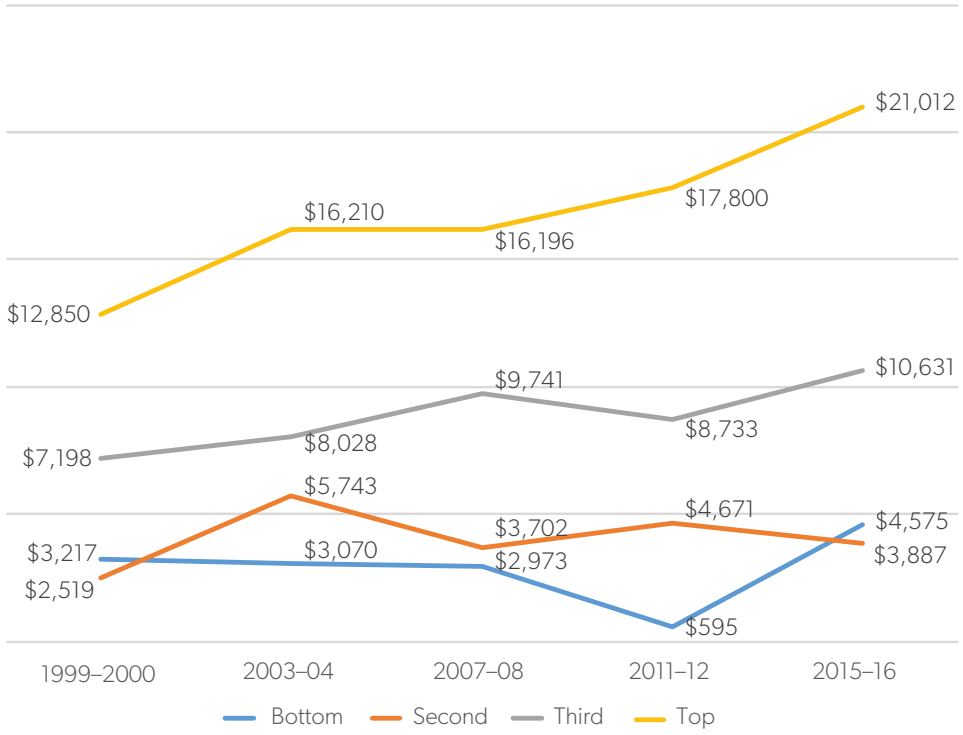
Net Price at Selective Colleges. Many assume that the share of students at selective colleges who are from low-income families should be declining because typical prices at these institutions are relatively high and have increased more than at other, less-selective institutions. NPSAS data allow us to examine this trend more closely than other data sets and by student income. The data include detailed information about both institutions' published "sticker" prices and the "net" prices that each student pays after factoring in all grants, scholarships, and discounts.[27]

Figure 3 shows the median net tuition and fees paid by full-time students in each income quartile attending the 200 most selective institutions, adjusted for inflation.[28] Note that there is some uncertainty around these estimates as the sample sizes for each quartile are small, particularly in 2011–12. Appendix D shows the sample size for each quartile and year.

Surprisingly, median tuition for students in the lowest income quartile has increased far less in real terms since 1999–2000 than what the popular narrative suggests. A full-time student from a low-income family pays only $1,358 more per year in tuition at a selective college today than a similar student did in 1999–2000. In relative terms, however, that is still a large increase. The finding is similar for students from the second income quartile. This evidence suggests that, despite the large increases in college prices and costs in recent decades, selective institutions and policymakers have not passed on much of the increase to low-income students by providing large increases in available student aid and tuition discounts.

The lowest two income quartiles are, however, the only groups of students at selective colleges spared large tuition increases in absolute dollar terms. Students in the highest income group have borne large

Figure 3. Median Net Annual Tuition in 2016 Dollars at the 200 Most Selective Colleges and Universities by Income Quartile and Year



Source: Authors' calculations using the National Postsecondary Student Aid Study.

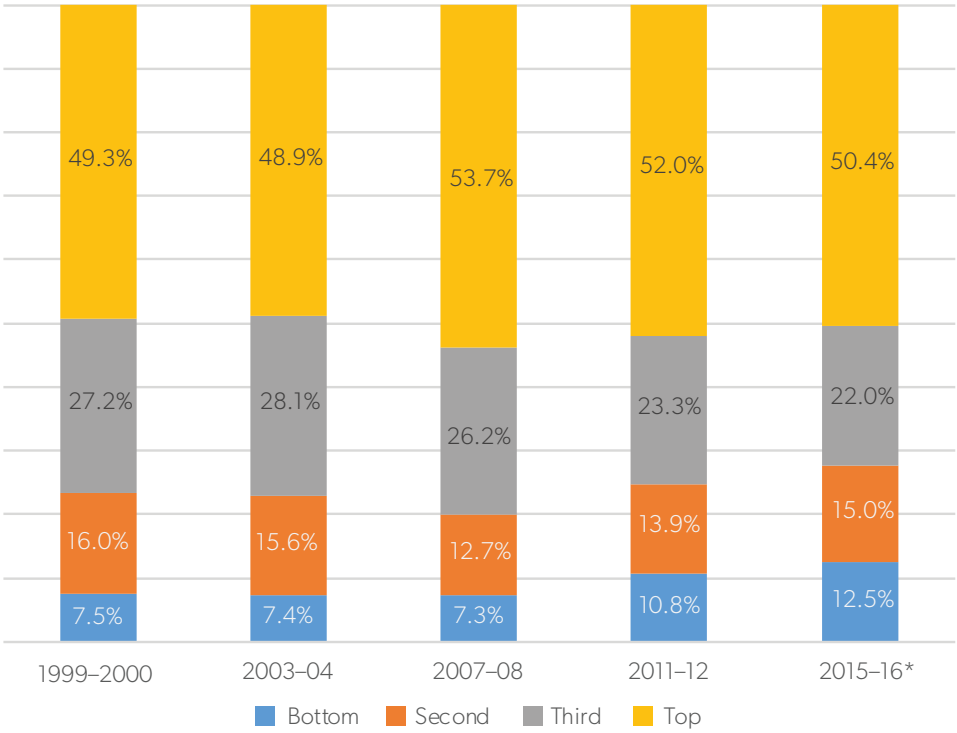
net tuition increases, with their annual net tuition rising by $8,162 over inflation from 1999–2000 to 2015–16. That is a 64 percent increase. Students in the third income quartile—the group that saw the largest decline in enrollment at selective institutions—have also seen substantial tuition increases. Over that same time period, their net annual tuition increased by $3,433 after inflation.

One important caveat to these findings is that the 200 most selective institutions include public and private institutions, which have different pricing structures. (For instance, in-state students at public universities receive heavily subsidized tuition relative to their peers at private colleges.) At both public and private institutions, net tuition for students in the top quartile has risen much faster than inflation. However, among students in the bottom three quartiles, net tuition has risen at public institutions but remained relatively flat at private ones. And public institutions have largely driven the increase in net tuition prices for the third quartile.

Enrollment at Public Flagship Universities. So far we have focused on the 200 most selective public and private institutions. We also analyzed a different set of institutions that receive scrutiny for their perceived levels of economic diversity. So-called flagship universities are generally regarded as the most prestigious, largest, or most research-intensive public universities in each state.

There is some debate about which university is the flagship university in certain states or whether some states have more than one. We selected the single institution in each state most commonly considered to be the flagship. (See Appendix C for the list.) Only 12 of the flagship universities are included in

Figure 4. Enrollment at State Flagship Universities by Income Quartile and Year (Dependent Students)



Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

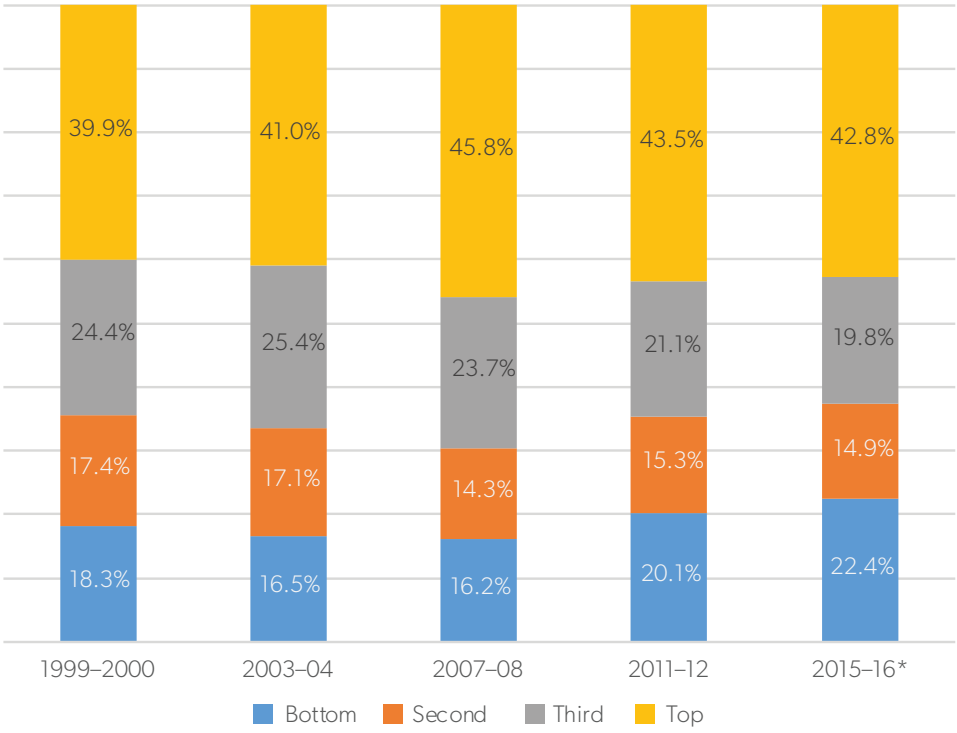
the 200 most selective universities, highlighting that on a national level most flagship universities are not highly selective. Nevertheless, they often are the most selective or prestigious public institutions that students can access in their home states, and they tend to charge lower tuition to residents than private or out-of-state institutions do, making them another category of institution for gauging access to more selective colleges.

Figure 4 shows the share of dependent students enrolled at flagship universities by income quartile from 1999–2000 to 2015–16. Compared with the 200 most selective colleges, a slightly greater share of the student body at flagship universities comes from the bottom three quartiles. Figure 4 also shows that changes in the share of enrollment by income quartile look similar to those at the 200 most selective institutions.

Like at the 200 most selective universities, we do not find evidence that the share of dependent students enrolled at flagship universities who are low income has declined over the 16-year period studied. While the share shown in Figure 4 appears to have increased between 1999–2000 and 2015–16, from 7.5 to 12.5 percent, the likely overrepresentation of low-income students in the NPSAS sample for flagship universities in 2015–16 makes it difficult to draw that conclusion.

Regarding high-income students, Figure 4 shows that they were an increasing share of the enrollment at flagship universities from 1999–2000 to 2007–08. The change is statistically significant and lines up with the finding for the 200 most selective institutions: Among dependent students, those from high-income families became even more overrepresented at these institutions during the mid-2000s.

Figure 5. Enrollment at State Flagship Universities by Income Quartile and Year (Dependent and Independent Students)



Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

One group, however, has become less represented at flagship universities. Like at the 200 most selective institutions, dependent students from the two middle income quartiles declined as a relative share of enrollment at flagship universities between 1999–2000 and 2011–12. Their share of enrollment continued to decline in 2015–16, but we interpret that finding with caution because low-income students are likely overrepresented at flagship institutions in the 2015–16 NPSAS. While the changes for the middle two quartiles are not statistically significant individually, when we combine the quartiles to increase the sample size, the decline is statistically significant. Thus, we find evidence that at flagship universities the group with the largest decline in relative enrollment is students from middle-income families.

These findings for dependent students all hold when we include independent students in the analysis, which is shown in Figure 5. That is, our findings regarding changes to the share of students enrolled at flagship institutions from each income group move in the same direction and with similar magnitude, regardless of whether we include independent students.

Comparing Results with Other Literature on Selective College Enrollment

Readers may be interested to know how our findings compare with other studies, given the common view that low-income students have become less represented at elite colleges. In this section we discuss some of the prominent literature that examines the incomes of students enrolled at selective colleges and how the methodology, data, and conclusions from those studies differ from ours. Generally, differences arise due to how other studies define selective

universities, the groups of students that the studies exclude, or how the studies define low income.

Most studies define selective universities more narrowly than we do, limiting the group to a few dozen institutions that enroll fewer than 4 percent of all undergraduates seeking bachelor's degrees. They also exclude some selective institutions that are not comprehensive universities, such as elite engineering, nursing, and art and design schools.

Other differences stem from how these studies measure income. Many use proxies for income. Others exclude various subpopulations, such as older independent students or those attending part time. Some of these studies, however, reach similar conclusions to ours, finding that the share of students enrolled at selective colleges who come from low-income families has not changed substantially in the past two decades.

Raj Chetty et al. By far, the most significant study on different income groups' access to selective colleges is one by Raj Chetty et al.[29] Chetty and his coauthors use restricted data from federal income tax returns to match students' college enrollments to their parents' income. They construct a data set of students born between 1980 and 1991 who attended college for at least one year between the ages of 19 and 22. Based on this data set, Chetty and his coauthors released data to the public on the income distribution of students attending thousands of colleges across America.

Chetty finds that at 176 selective colleges, the share of low-income students has remained roughly constant between 1999 and 2013.[30] For students at these colleges in the 1980 birth cohort (those attending college between 1999 and 2002), roughly 5 percent came from the bottom income quintile.[31] By the 1991 birth cohort (those attending college between 2010 and 2013), the share of bottom-quintile students was 4.7 percent—a change of just half a percentage point. The picture is similar in the extreme upper tier of selectivity: In the Ivy League and other top schools,[32] bottom-quintile students accounted for 3.9 percent of both the 1980 cohort and the 1991 cohort. The authors also find that the share of students from the wealthiest quintile has increased only slightly at selective colleges.

When looking specifically at the 200 schools classified as selective in our analysis, Chetty finds that the share of students enrolled at these institutions who are low income remained roughly constant over the years that overlap in our studies—the same as our finding. There is a slight discrepancy in magnitude, however, as Chetty finds that students in the bottom income quintile make up between 5.1 and 5.5 percent of enrollment at those schools. When limiting our sample from the NPSAS to dependent students only, we find that students from the bottom income quintile make up between 5.4 and 7.7 percent of enrollment at the 200 most selective institutions during the years that overlap between the two studies.[33] For all students (including independents), we find that between 11.4 and 13.2 percent of students are in the bottom income quintile during the overlapping years.

Several reasons may explain the differences in the data and why we find a greater share of low-income students among the population at selective institutions, even when looking at the same set of selective institutions. First, Chetty's data exclude students who first enroll in college after the age of 22. As these students are more likely to be low income,excluding them biases the estimated low-income share downward.[34]

A second reason has to do with measuring the income of students who are no longer dependent on their parents. A unique strength of Chetty's data set is that it matches independent students with their *parents*' income, while our data set instead uses the income of each independent student.

Third, Chetty measures parents' income (for both dependent and independent students) when the student is between ages 15 and 19 and then averages it. Income in the NPSAS is recorded just once, two years before the study year (e.g., 2014 for the 2015–16 NPSAS), regardless of the student's age at the time.

The Pell Grant Proxy and the Out-of-State Student Proxy. Aside from Chetty and his colleagues, several other researchers have examined the distribution of student incomes at selective colleges. Some researchers use the share of students who receive Pell Grants as a proxy for low-income student enrollment. An advantage of the "Pell proxy" is that it is available

at the institution level, while data on student income distribution are generally available only for large groups of institutions.

Jennifer Giancola and Richard Kahlenberg find that the share of students receiving Pell Grants remained constant at highly selective colleges from 2000 to 2013 but rose substantially at less-selective and nonselective schools.[35] Therefore, they conclude, even as the college-going population has shifted toward low-income students, selective colleges have not followed the trend. The Pell Institute makes a similar argument.[36] Anthony P. Carnevale and Martin Van Der Werf likewise use the Pell proxy to argue that selective colleges can and should enroll more low-income students.[37]

Despite the advantages of the Pell proxy, it suffers from several drawbacks, as Jason Delisle identified.[38] First, a significant share of low-income students does not receive Pell Grants; some do not apply, and some are ineligible for various reasons. Second, many middle-class students are eligible for the grant, making the program a poor proxy for the share of low-income students enrolled in a particular university.

For time-series analysis, the Pell proxy is even less reliable. Eligibility rules for Pell Grants have changed markedly over time, leading to more middle-income students using the program, and low-income students have been applying for and receiving Pell Grants at increasing rates. Therefore, an increase in the share of students receiving Pell Grants at selective universities does not necessarily reflect an increase in low-income students.

Other studies use alternative proxies for income, such as the share of out-of-state students at public flagship universities.[39] While it is commonly assumed that nearly all out-of-state students at public flagship universities are from high-income families, in fact only 56 percent of out-of-state students come from the top income quartile, and about 15 percent come from the bottom quartile.[40] These figures are similar for the public universities among the 200 most selective institutions.

Other Studies. A few other studies that examine the income distribution differ from ours in important ways. Catherine Hill et al. find that the share of students at selective *private* colleges who come from the bottom two quintiles of the income distribution is just 11 percent.[41] This proportion did not change substantially over the 2000s. However, this study limits its analysis to just 30 private institutions based on criteria in *US News & World Report* rankings, while our analysis covers 200 public and private schools for a broader definition of selectivity.

Another study uses the Education Longitudinal Study of 2002 (ELS:02) to show that just 3 percent of students attending the most selective schools were in the bottom socioeconomic status quartile.[42] While this study closely matches our cutoff for selectivity by focusing on the 193 institutions included in the top two categories of the Barron's index, its measure of income is unusual. The socioeconomic status variable in ELS:02 includes more than household income. It incorporates parents' highest levels of education and the "prestige" of their occupations as measures of socioeconomic status.[43] Incorporating these other variables may produce estimates of low-socioeconomic-status college enrollment that differ from estimates of enrollment focusing purely on income, as ours do.

Conclusion

The findings from this analysis paint a picture of access and affordability at America's most selective universities that is far less dire than many would have us believe. In fact, there is some surprisingly good news. Low-income students have not been increasingly crowded out of the most selective colleges, a finding consistent with Chetty et al. On selective college campuses, we are no less likely to find a student from the bottom income quartile today than at any time in the past 16 years.

Nor are low-income students bearing the full brunt of increasing tuition and fees at these colleges and universities. State and federal aid policies, along with tuition discounts from these institutions, have kept prices for low-income students from rising as much as for other students. These findings also cast

doubt on the argument that major trends in elite higher education—such as rising tuition, more competitive admissions standards, increasing merit aid, greater out-of-state student enrollment at public universities, or cuts to public higher education budgets—lead to declining relative enrollment among low-income students.

Of course, findings from this analysis bolster other concerns about access to selective colleges. Students from the top quartile are vastly overrepresented at selective institutions. Moreover, the share of students on these campuses who are from high-income families increased markedly in the mid-2000s. And despite the good news that the share of low-income students at selective institutions has not declined, it is concerning that the share of students from middle-income families has gone down. That income group saw the steadiest and most pronounced changes in enrollment at selective institutions, with their relative numbers declining substantially.

The causes of those changes are beyond the scope of this report but clearly merit further study. The middle class may be far more susceptible to the trends and practices that observers worried would shut low-income students out of selective colleges. It may also be that these students are caught between two competing goals and pressures that selective universities face in their enrollment practices. Enrolling low-income students requires that the universities make generous aid and discounts available to these students; the institutions must therefore continue to enroll large numbers of high-income students who pay the highest tuition prices, which helps finance the aid and discounts for low-income students. Middle-income students fall into neither category, which could be why their ranks are thinning at selective colleges and universities.

About the Authors

Jason D. Delisle is a resident fellow at the American Enterprise Institute. **Preston Cooper** is a research analyst at the American Enterprise Institute.

Acknowledgments

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Appendixes

Appendix A. Income Quartiles for US Households in Nominal and Inflation-Adjusted Dollars

	Nominal Dollars				
	1998	**2002**	**2006**	**2010**	**2014**
25th Percentile	19,790	21,384	24,600	24,001	25,948
50th Percentile	38,816	42,381	48,020	49,100	53,600
75th Percentile	66,909	75,000	85,028	88,000	98,810
	2015 Dollars				
	1998	**2002**	**2006**	**2010**	**2014**
25th Percentile	27,117	27,276	28,444	25,861	26,039
50th Percentile	53,187	54,057	55,524	52,906	53,788
75th Percentile	91,682	95,663	98,315	94,821	99,156

Note: Income statistics from 1998 are used for the 1999–2000 academic year, and so on.
Source: US Census Bureau, Current Population Survey. Figures converted to 2015 dollars using the Personal Consumption Expenditures index.

Appendix B. 200 Most Selective Colleges and Universities

Selectivity Rank	Institution Name	Average Acceptance Rate 2001–16	Average SAT/ACT Score 2001–16*
1	The Juilliard School	7.1%	N/A
2	Harvard University	8.8%	1490
3	Princeton University	10.5%	1480
4	Yale University	10.6%	1480
5	Massachusetts Institute of Technology	13.5%	1480
6	California Institute of Technology	17.0%	1520
7	Stanford University	10.5%	1450
8	Columbia University in the City of New York	11.8%	1440
9	Franklin W. Olin College of Engineering	17.5%	1490
10	Dartmouth College	16.3%	1440
11	Cooper Union for the Advancement of Science and Art	10.4%	N/A
12	Pomona College	18.7%	1460
13	Amherst College	17.2%	1430
14	Brown University	13.8%	1420
15	Washington University in St. Louis	20.7%	1440
16	Swarthmore College	20.2%	1440
17	Duke University	22.0%	1440

(*continued on the next page*)

Selectivity Rank	Institution Name	Average Acceptance Rate 2001–16	Average SAT/ACT Score 2001–16*
18	University of Pennsylvania	18.2%	1420
19	Williams College	20.1%	1420
20	Bowdoin College	21.5%	N/A
21	Rice University	23.0%	1420
22	University of Chicago	34.0%	1440
23	Harvey Mudd College	33.0%	1480
24	Claremont McKenna College	21.4%	1380
25	Phillips School of Nursing at Mount Sinai Beth Israel	22.0%	N/A
26	Northwestern University	29.6%	1420
27	Tufts University	25.9%	1390
28	Cornell University	24.0%	1390
29	Georgetown University	20.8%	1380
30	Johns Hopkins University	28.6%	1390
31	Vanderbilt University	32.8%	1380
32	University of Notre Dame	29.2%	1390
33	Middlebury College	21.7%	1380
34	Washington and Lee University	25.7%	1380
35	Wesleyan University	26.4%	1390
36	Haverford College	27.7%	1380
37	Carleton College	31.0%	1400
38	Vassar College	28.1%	1370
39	University of Southern California	26.6%	1350
40	Bates College	29.7%	N/A
41	Carnegie Mellon University	34.4%	1390
42	Pitzer College	35.9%	N/A
43	University of California, Berkeley	23.8%	1330
44	Hamilton College	31.7%	N/A
45	Barnard College	29.1%	1350
46	Colgate University	28.8%	1350
47	Davidson College	29.1%	1350
48	Emory University	35.5%	1390
49	United States Air Force Academy	15.4%	1290
50	California Institute of the Arts	33.1%	N/A
51	Brigham Young University–Hawaii	31.4%	N/A
52	Oberlin College	33.9%	1360
53	Colby College	33.5%	1350
54	Wellesley College	37.0%	1370
55	Boston College	30.1%	1330
56	United States Naval Academy	11.8%	1270
57	College of William and Mary	33.9%	1340
58	University of California, Los Angeles	24.6%	1280
59	The New England Conservatory of Music	34.8%	N/A
60	United States Military Academy	13.8%	1260

(*continued on the next page*)

Selectivity Rank	Institution Name	Average Acceptance Rate 2001–16	Average SAT/ACT Score 2001–16*
61	Colorado College	40.1%	1300
62	New York University	34.3%	1330
63	Brandeis University	39.3%	1350
64	United States Coast Guard Academy	12.8%	1260
65	University of Virginia	36.4%	1330
66	Bucknell University	33.5%	1300
67	Pennsylvania College of Health Sciences	35.1%	N/A
68	Bard College	34.7%	N/A
69	Connecticut College	35.1%	N/A
70	Macalester College	42.6%	1350
71	University of North Carolina at Chapel Hill	35.4%	1290
72	Tulane University	41.3%	1320
73	Manhattan School of Music	36.5%	N/A
74	Kenyon College	40.3%	1320
75	Lehigh University	37.7%	1300
76	Reed College	45.0%	1370
77	University of Richmond	39.8%	1290
78	Cleveland Institute of Music	35.3%	N/A
79	College of the Holy Cross	38.8%	N/A
80	Trinity College	37.5%	1290
81	Scripps College	46.4%	1340
82	University of Rochester	43.5%	1320
83	Grinnell College	51.0%	1350
84	Lafayette College	39.7%	1270
85	Wake Forest University	42.4%	N/A
86	Fashion Institute of Technology	38.8%	N/A
87	George Washington University	39.3%	1280
88	Florida Memorial University	38.5%	N/A
89	Wilberforce University	38.8%	N/A
90	University of Michigan–Ann Arbor	50.5%	1320
91	Babson College	37.8%	1250
92	University of California, San Diego	40.7%	1260
93	University of Miami	42.0%	1260
94	Occidental College	42.6%	1270
95	Union College	43.5%	N/A
96	Rhode Island School of Design	31.4%	1220
97	Northeastern University	46.9%	1230
98	Bryn Mawr College	48.7%	1310
99	Pepperdine University	31.0%	1230
100	State University of New York at Binghamton	41.1%	1260
101	Marist College	44.7%	N/A
102	University of Maryland, College Park	45.8%	1280
103	Gettysburg College	45.1%	1270

(*continued on the next page*)

Selectivity Rank	Institution Name	Average Acceptance Rate 2001–16	Average SAT/ACT Score 2001–16*
104	Muhlenberg College	41.6%	N/A
105	California Polytechnic State University	27.1%	1200
106	Washington & Jefferson College	44.3%	N/A
107	Whitman College	49.6%	1330
108	State University of New York College at Geneseo	41.3%	1280
109	Villanova University	47.1%	1280
110	Skidmore College	42.9%	1250
111	Franklin & Marshall College	47.8%	N/A
112	Stevens Institute of Technology	50.5%	1270
113	St. Luke's College	45.4%	N/A
114	San Francisco Conservatory of Music	47.2%	N/A
115	The College of New Jersey	46.6%	1250
116	University of Florida	49.3%	1250
117	Dickinson College	48.4%	N/A
118	Boston University	56.0%	1280
119	Bentley University	42.3%	1200
120	University of Texas at Austin	50.5%	1230
121	Smith College	50.6%	N/A
122	Rensselaer Polytechnic Institute	59.3%	1330
123	Laboure College	42.3%	N/A
124	Laguna College of Art and Design	49.5%	N/A
125	Emerson College	46.2%	1220
126	American University	54.0%	1250
127	Berklee College of Music	53.0%	N/A
128	Denison University	48.5%	1250
129	Stony Brook University	47.3%	1180
130	Rhodes College	52.4%	1270
131	Fordham University	49.5%	1210
132	Georgia Institute of Technology	61.6%	1330
133	St. Lawrence University	51.0%	N/A
134	Sarah Lawrence College	47.5%	N/A
135	University of California, Santa Barbara	51.0%	1190
136	New College of Florida	55.6%	1320
137	Elon University	47.3%	1190
138	Jewish Theological Seminary of America	58.0%	1340
139	Tennessee Temple University	47.9%	N/A
140	The Boston Conservatory	55.3%	N/A
141	Illinois Wesleyan University	53.3%	1270
142	Baruch College	31.6%	1120
143	Mercy College	46.2%	N/A
144	Mount Holyoke College	52.9%	N/A
145	Maria College of Albany	51.7%	N/A
146	University of San Diego	52.2%	1180

(*continued on the next page*)

Selectivity Rank	Institution Name	Average Acceptance Rate 2001–16	Average SAT/ACT Score 2001–16*
147	University of Texas at Dallas	53.3%	1230
148	University of Tulsa	60.8%	1220
149	Coppin State University	52.0%	N/A
150	New Hope Christian College	51.9%	N/A
151	College for Creative Studies	54.0%	N/A
152	American Musical and Dramatic Academy	52.4%	N/A
153	University of Pittsburgh	55.4%	1220
154	Chapman University	55.5%	1200
155	Webb Institute	52.6%	N/A
156	Southern Methodist University	58.5%	1220
157	University of Connecticut	54.2%	1190
158	Curtis Institute of Music	52.9%	N/A
159	Shaw University	51.9%	N/A
160	Southwestern Assemblies of God University	53.0%	N/A
161	University of California, Irvine	54.1%	1180
162	Illinois Institute of Technology	60.8%	1280
163	Berea College	26.6%	1120
164	Maryland Institute College of Art	46.4%	1150
165	Summit Christian College	53.8%	N/A
166	Pennsylvania State University	54.8%	1190
167	University of California, Davis	57.6%	1180
168	Wheaton College (IL)	58.1%	1320
169	Maharishi University of Management	53.8%	N/A
170	Kettering College	45.6%	N/A
171	Clemson University	58.2%	1210
172	Pennsylvania College of Art and Design	53.9%	N/A
173	Wheaton College (MA)	49.7%	N/A
174	University of Minnesota, Twin Cities	57.6%	1220
175	Trinity University	62.3%	1280
176	Colorado School of Mines	60.3%	1270
177	Jefferson College of Health Sciences	48.2%	N/A
178	University of Delaware	51.6%	1180
179	Voorhees College	49.0%	N/A
180	Case Western Reserve University	62.6%	1340
181	St. Olaf College	61.4%	1290
182	Santa Clara University	59.0%	1240
183	Syracuse University	58.3%	1200
184	New Mexico Institute of Mining and Technology	59.4%	1230
185	Baylor University	59.7%	1190
186	University of Central Florida	54.8%	1160
187	Loyola Marymount University	55.7%	1160
188	Cornell College	55.9%	1210
189	Providence College	53.5%	N/A

(*continued on the next page*)

Selectivity Rank	Institution Name	Average Acceptance Rate 2001–16	Average SAT/ACT Score 2001–16*
190	North Carolina State University	58.2%	1200
191	Furman University	59.5%	1280
192	University of North Carolina School of the Arts	43.1%	1120
193	Touro College	55.6%	N/A
194	State University of New York at New Paltz	41.6%	1110
195	Grove City College	53.3%	1260
196	State University of New York College of Environmental Science and Forestry	53.6%	1150
197	Virginia Military Institute	51.6%	1140
198	Metropolitan College of New York	56.0%	N/A
199	Rutgers University–New Brunswick	58.5%	1190
200	Texas Christian University	55.5%	1170

Note: *Typical SAT scores are defined as the average of the 25th and 75th percentile composite SAT scores of enrolled undergraduate students. Due to data limitations, 50th percentile and mean SAT scores are not available. For institutions that do not report SAT scores, ACT scores converted to the SAT scoring scale are used where available.

Souce: Authors.

Appendix C. State Flagship Universities

Indiana University Bloomington
Louisiana State University and Agricultural and Mechanical College
Ohio State University
Pennsylvania State University
Rutgers University–New Brunswick
State University of New York at Buffalo
University of Alabama
University of Alaska Fairbanks
University of Arizona
University of Arkansas
University of California, Berkeley
University of Colorado Boulder
University of Connecticut
University of Delaware
University of Florida
University of Georgia
University of Hawaii at Manoa
University of Idaho
University of Illinois at Urbana–Champaign
University of Iowa
University of Kansas
University of Kentucky
University of Maine
University of Maryland, College Park
University of Massachusetts Amherst
University of Michigan–Ann Arbor
University of Minnesota, Twin Cities
University of Mississippi
University of Missouri–Columbia
University of Montana
University of Nebraska–Lincoln
University of Nevada, Reno
University of New Hampshire
University of New Mexico
University of North Carolina at Chapel Hill
University of North Dakota
University of Oklahoma
University of Oregon
University of Rhode Island
University of South Carolina
University of South Dakota
University of Tennessee, Knoxville
University of Texas at Austin
University of Utah
University of Vermont
University of Virginia
University of Washington–Seattle Campus
University of Wisconsin–Madison
University of Wyoming
West Virginia University

Source: Authors.

Appendix D. Sample Size by Institution Category for Each National Postsecondary Student Aid Study*

	1999–2000	2003–04	2007–08	2011–12	2015–16
Figure 1. Selective 200 Dependent Students Only					
Quartile 1	290	410	830	300	520
Quartile 2	520	710	1,070	390	530
Quartile 3	830	990	1,170	620	790
Quartile 4	1,870	2,450	2,770	1,960	2,400
Total	3,510	4,560	5,840	3,270	4,240
Figure 2. Selective 200 All Students					
Quartile 1	680	750	1,430	480	1,280
Quartile 2	650	890	1,210	430	660
Quartile 3	930	1,080	1,300	650	880
Quartile 4	1,940	2,500	2,830	1,970	2,440
Total	4,200	5,220	6,770	3,530	5,260
Figure 3. Median, Net, Full-Time Tuition Prices					
Quartile 1	410	430	910	320	690
Quartile 2	410	500	800	280	390
Quartile 3	600	710	820	460	550
Quartile 4	1,410	1,770	1,890	1,480	1,690
Total	2,830	3,410	4,420	2,540	3,320
Figure 4. State Flagship Universities Dependent Students Only					
Quartile 1	200	240	540	280	300
Quartile 2	400	540	860	370	360
Quartile 3	740	900	1,190	620	690
Quartile 4	1,360	1,700	2,170	1,550	1,570
Total	2,700	3,380	4,760	2,820	2,920
Figure 5. State Flagship Universities All Students					
Quartile 1	730	610	1,350	610	860
Quartile 2	590	680	1,070	470	480
Quartile 3	860	970	1,280	680	750
Quartile 4	1,430	1,730	2,210	1,570	1,610
Total	3,610	3,990	5,910	3,330	3,700

Note: *Figures are rounded to the nearest 10.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix E. Confidence Intervals (95 Percent) for Key Figures

Figure 1. Enrollment at the 200 Most Selective Colleges and Universities by Income Quartile and Year (Dependent Students)

1999–2000			2003–04			2007–08			2011–12			2015–16		
Quartile			Quartile			Quartile			Quartile			Quartile		
1	6.8%	9.4%	1	8.4%	10.7%	1	7.3%	8.8%	1	8.6%	11.3%	1	13.5%	16.6%
2	13.4%	15.7%	2	14.8%	17.8%	2	11.0%	13.4%	2	11.5%	14.9%	2	11.8%	14.5%
3	23.4%	27.1%	3	21.0%	23.7%	3	20.6%	23.8%	3	18.5%	22.5%	3	16.1%	19.1%
4	50.0%	54.3%	4	49.5%	54.2%	4	55.6%	59.4%	4	54.1%	58.5%	4	51.9%	56.6%

Figure 2. Enrollment at the 200 Most Selective Colleges and Universities by Income Quartile and Year (Dependent and Independent Students)

1999–2000			2003–04			2007–08			2011–12			2015–16		
Quartile			Quartile			Quartile			Quartile			Quartile		
1	13.6%	16.6%	1	14.0%	18.3%	1	13.1%	15.6%	1	14.2%	17.5%	1	23.0%	26.6%
2	14.3%	16.6%	2	16.2%	20.3%	2	11.7%	14.0%	2	12.4%	15.8%	2	11.6%	14.3%
3	22.2%	25.3%	3	19.8%	22.3%	3	20.2%	23.1%	3	17.6%	21.4%	3	14.7%	17.6%
4	43.4%	48.0%	4	41.1%	47.9%	4	49.0%	53.2%	4	48.4%	52.6%	4	43.8%	48.4%

Figure 4. Enrollment at State Flagship Universities by Income Quartile and Year (Dependent Students)

1999–2000			2003–04			2007–08			2011–12			2015–16		
Quartile			Quartile			Quartile			Quartile			Quartile		
1	6.3%	8.6%	1	6.4%	8.4%	1	6.3%	8.4%	1	9.5%	12.1%	1	10.8%	14.3%
2	14.5%	17.5%	2	14.1%	17.1%	2	11.6%	13.9%	2	12.6%	15.2%	2	13.4%	16.6%
3	24.8%	29.6%	3	25.8%	30.3%	3	24.6%	27.9%	3	21.3%	25.3%	3	20.4%	23.6%
4	47.2%	51.4%	4	46.7%	51.2%	4	52.0%	55.5%	4	49.6%	54.4%	4	48.0%	52.8%

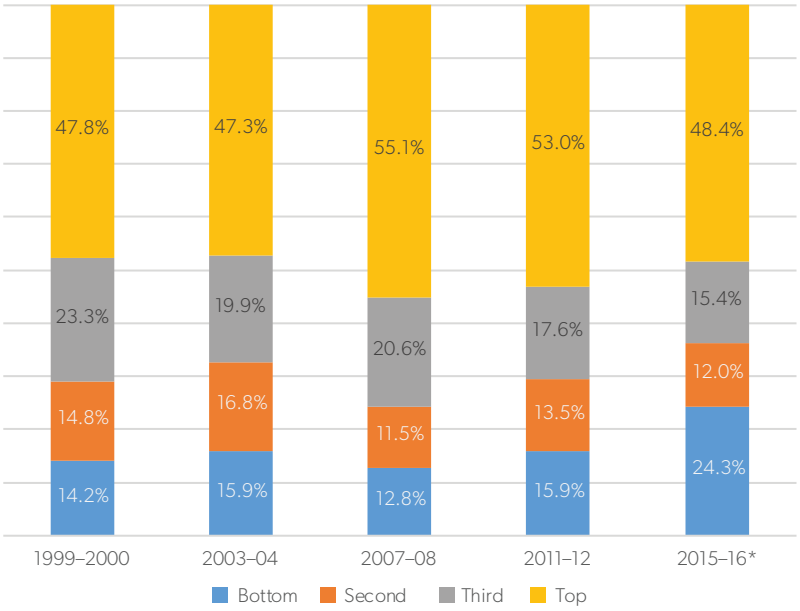
(continued on the next page)

Figure 5. Enrollment at State Flagship Universities by Income Quartile and Year (Dependent and Independent Students)

1999–2000			2003–04			2007–08			2011–12			2015–16		
Quartile			Quartile			Quartile			Quartile			Quartile		
1	16.8%	19.8%	1	15.3%	17.7%	1	15.0%	17.3%	1	18.5%	21.8%	1	20.6%	24.3%
2	15.8%	19.0%	2	15.6%	18.6%	2	13.2%	15.4%	2	14.0%	16.6%	2	13.6%	16.3%
3	22.3%	26.5%	3	23.4%	27.5%	3	22.3%	25.2%	3	19.4%	22.9%	3	18.4%	21.2%
4	38.0%	41.8%	4	39.0%	42.9%	4	44.3%	47.4%	4	41.0%	45.9%	4	40.4%	45.2%

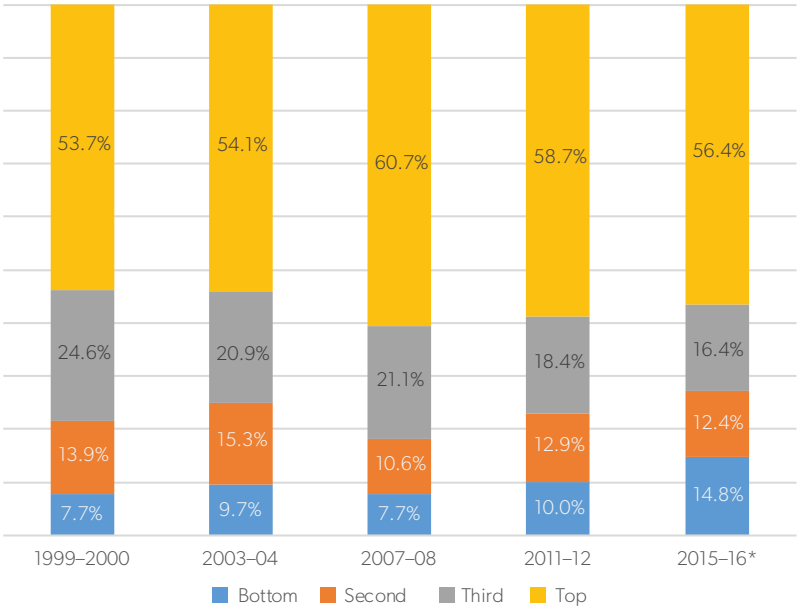
Note: Confidence intervals are calculated using NPSAS replicate weights.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix F. Enrollment at the 150 Most Selective Colleges and Universities by Income Quartile and Year



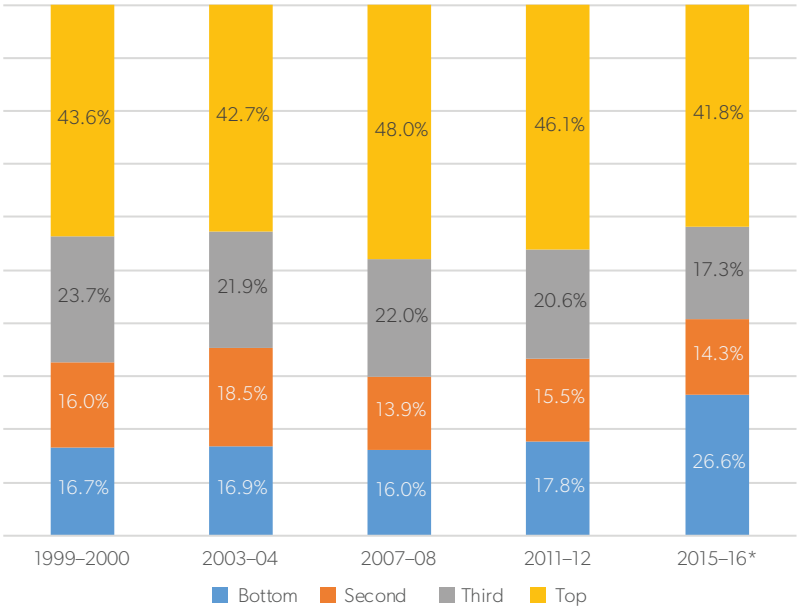
Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix G. Dependent Student Enrollment at the 150 Most Selective Colleges and Universities by Income Quartile and Year



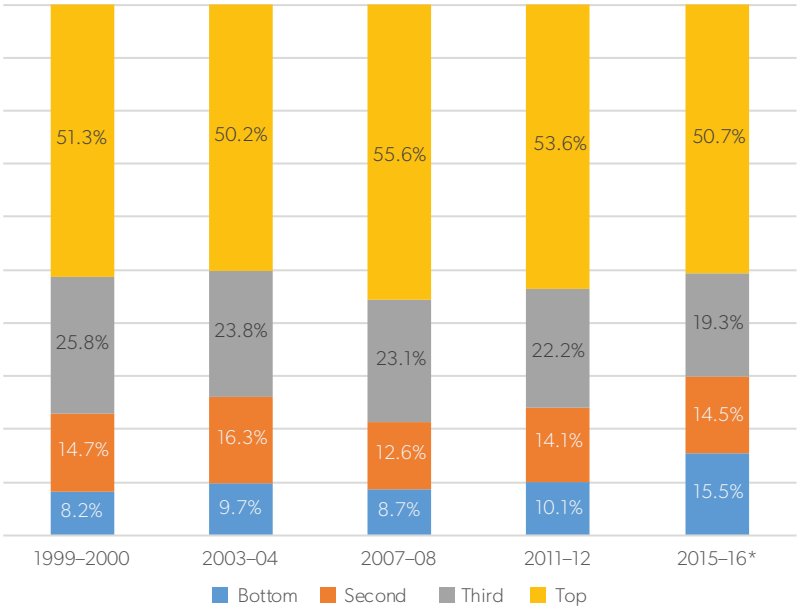
Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix H. Enrollment at the 250 Most Selective Colleges and Universities by Income Quartile and Year



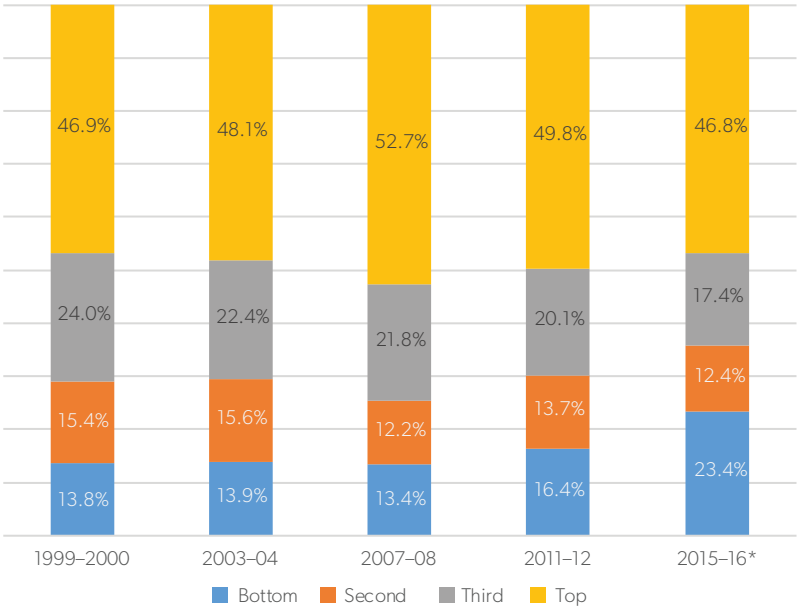
Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix I. Dependent Student Enrollment at the 250 Most Selective Colleges and Universities by Income Quartile and Year



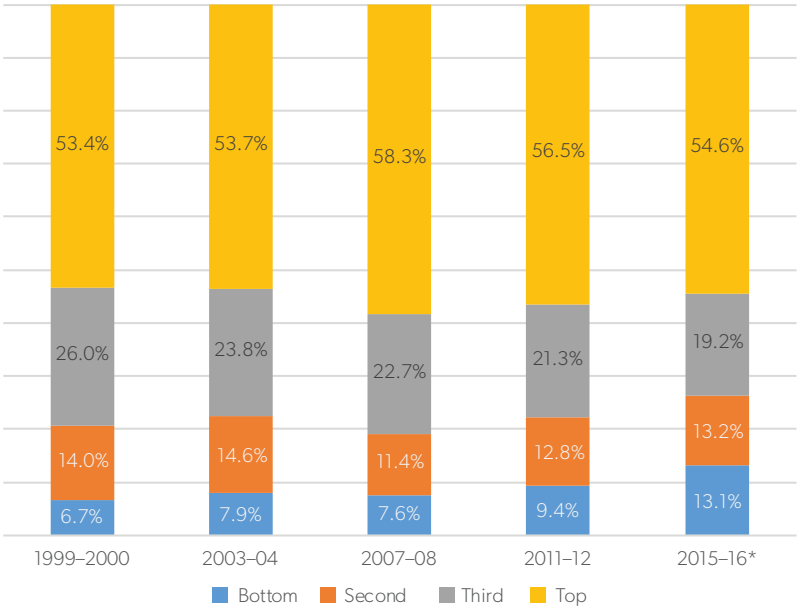
Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix J. Enrollment at Barron's Index "Most Competitive" and "Highly Competitive" Colleges and Universities by Income Quartile and Year



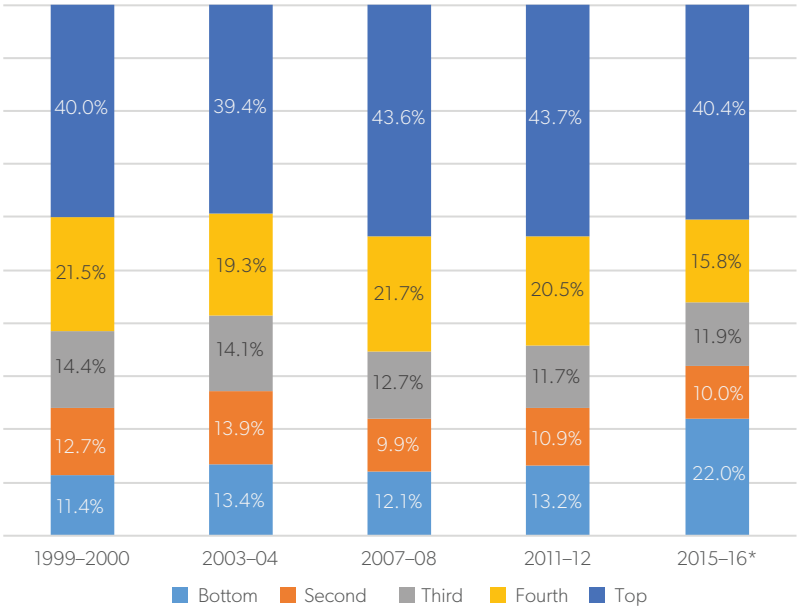
Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix K. Dependent Student Enrollment at Barron's Index "Most Competitive" and "Highly Competitive" Colleges and Universities by Income Quartile and Year



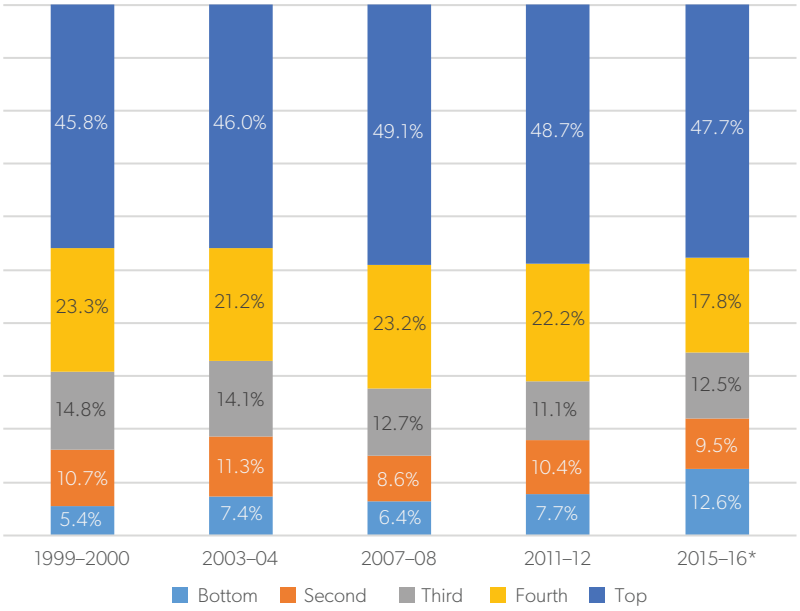
Note: *Interpret with caution. The bottom quartile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix L. Enrollment at the 200 Most Selective Colleges and Universities by Income Quintile and Year



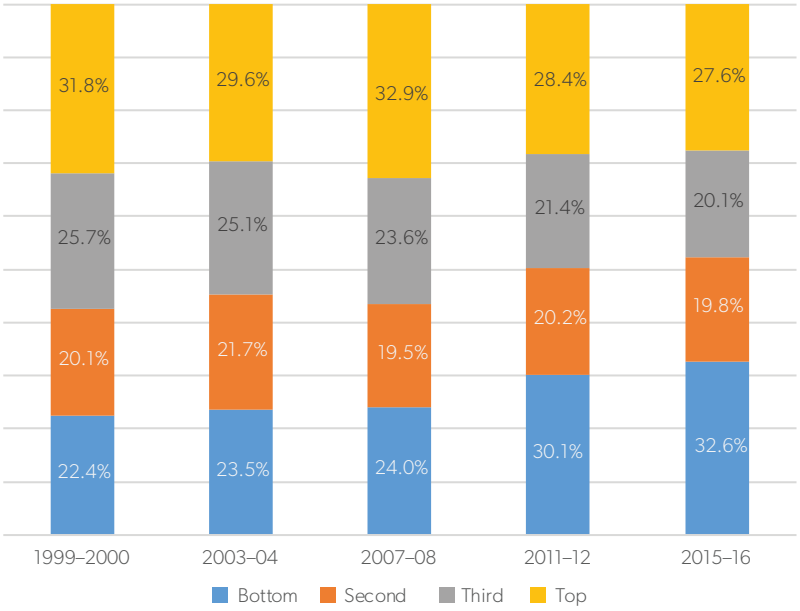
Note: *Interpret with caution. The bottom quintile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix M. Dependent Student Enrollment at the 200 Most Selective Colleges and Universities by Income Quintile and Year



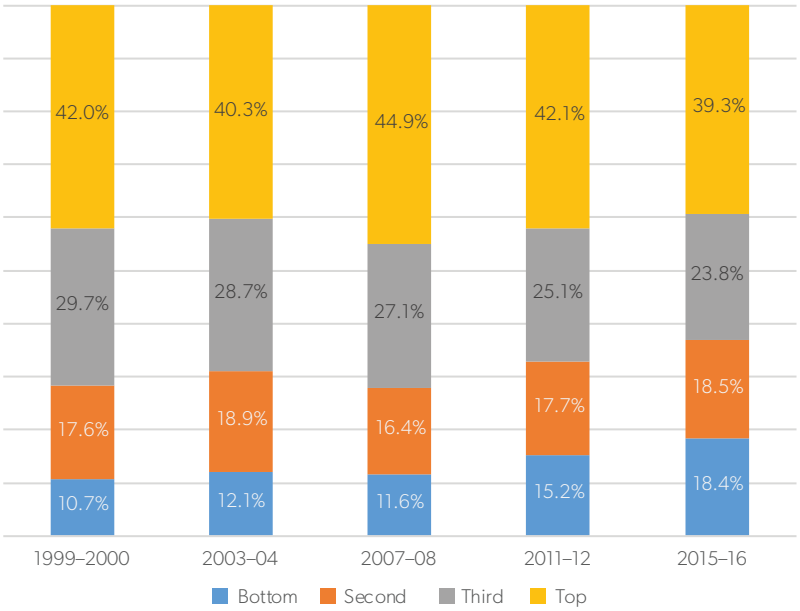
Note: *Interpret with caution. The bottom quintile is likely overrepresented in the survey data for these institutions.
Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix N. Enrollment at All Colleges and Universities by Income Quartile and Year, Bachelor's Degree Only



Source: Authors' calculations using the National Postsecondary Student Aid Study.

Appendix O. Dependent Student Enrollment at All Colleges and Universities by Income Quartile and Year, Bachelor's Degree Only



Source: Authors' calculations using the National Postsecondary Student Aid Study.

Notes

1. Jack Kent Cooke Foundation, "Report Finds Flagship Universities Becoming Instruments of Social Stratification," press release, June 13, 2017, www.jkcf.org/report-finds-flagship-universities-becoming-instruments-of-social-stratification/.

2. Kati Haycock, Mary Lynch, and Jennifer Engle, *Opportunity Adrift: Our Flagship Universities Are Straying from Their Public Mission*, Education Trust, January 2010, https://1k9gl1yevnfp2lpq1dhrqe17-wpengine.netdna-ssl.com/wp-content/uploads/2013/10/Opportunity-Adrift_0.pdf.

3. Jillian Berman, "Selective Colleges Are Less Likely to Enroll High Levels of Low-Income Students," MarketWatch, April 25, 2017, www.marketwatch.com/story/selective-colleges-are-less-likely-to-enroll-high-levels-of-low-income-students-2017-04-25; and Margaa ret Cahalan et al., *Indicators of Higher Education Equity in the United States: 2017 Historical Trend Report*, Pell Institute for the Study of Opportunity in Education and Alliance for Higher Education and Democracy, University of Pennsylvania, 2017, http://pellinstitute.org/indicators/reports_2017.shtml.

4. Gregor Aisch et al., "Some Colleges Have More Students from the Top 1 Percent Than the Bottom 60. Find Yours.," *New York Times*, January 18, 2017, www.nytimes.com/interactive/2017/01/18/upshot/some-colleges-have-more-students-from-the-top-1-percent-than-the-bottom-60.html.

5. Josh Freedman, "Why American Colleges Are Becoming a Force for Inequality," *Atlantic*, May 16, 2013, www.theatlantic.com/business/archive/2013/05/why-american-colleges-are-becoming-a-force-for-inequality/275923/.

6. Doug Lederman, "The Rapid Rise of Merit Aid," Insider Higher Ed, October 19, 2011, www.insidehighered.com/news/2011/10/19/rapid-rise-merit-aid.

7. Laura McKenna, "The Allure of the Out-of-State Student," *Atlantic*, October 15, 2015, www.theatlantic.com/education/archive/2015/10/the-allure-of-the-out-of-state-student/410656/; Paul Fain, "Poverty and Merit," Inside Higher Ed, January 12, 2016, www.insidehighered.com/news/2016/01/12/high-achieving-low-income-students-remain-rare-most-selective-colleges; Berman, "Selective Colleges Are Less Likely to Enroll High Levels of Low-Income Students"; and Jon Marcus and Holly K. Hacker, "The Rich-Poor Divide on America's College Campuses Is Getting Wider, Fast," Hechinger Report, December 17, 2015, http://hechingerreport.org/the-socioeconomic-divide-on-americas-college-campuses-is-getting-wider-fast/.

8. Jason D. Delisle, "The Pell Grant Proxy: A Ubiquitous but Flawed Measure of Low-Income Student Enrollment," Brookings Institution, October 12, 2017, www.brookings.edu/research/the-pell-grant-proxy-a-ubiquitous-but-flawed-measure-of-low-income-student-enrollment/; and National Center for Education Statistics, "IPEDS: Integrated Postsecondary Education Data System," https://nces.ed.gov/ipeds/. Integrated Postsecondary Education Data System (IPEDS) data records the number of undergraduate students in each of five income bins. However, these data only go back to 2008, and income bin cutoffs are not adjusted for inflation over time. In addition, the data only include students who are (1) enrolled full time, (2) in their first year of higher education, (3) awarded Title IV federal financial aid, (4) enrolled in the fall, (5) seeking a degree or certificate, (6) attending an institution with a standard calendar system, and (7) paying the in-state or in-district tuition rate, if attending a public institution. At the University of Maryland, for example, only 5 percent of undergraduate students meet these qualifications.

9. National Center for Education Statistics, "National Postsecondary Student Aid Study (NPSAS)," https://nces.ed.gov/surveys/npsas/.

10. As the NPSAS is a sample, not all 200 of these institutions are represented in each iteration of the survey.

11. The NPSAS defines independent students as those who are 24 or older, are married, have legal dependents, have served in the armed forces, are orphans, or are homeless. For incomes, we use the variable CINCOME exclusively throughout our analysis.

12. Our main findings are unchanged if we instead use a constant, inflation-adjusted set of income quartiles for US households in 2011–12 for each year in the analysis.

13. These data come from the IPEDS. Note that these data are available starting in 2001, two years later than the first year in this analysis, which is why our ranking incorporates 2001 as the earliest year. Typical SAT scores are defined as the average of the 25th

and 75th percentile composite SAT scores of enrolled undergraduate students. Due to data limitations, 50th percentile and mean SAT scores are not available. For institutions that do not report SAT scores, ACT scores converted to the SAT scoring scale are used where available. For institutions that do not report SAT/ACT score data in IPEDS, we rank the selectivity of the institution giving full weight to admission rates.

14. Fifteen academic years of data are available in IPEDS (2001–02 through 2015–16). We only include schools that have at least one of the two necessary data points for at least 12 out of 15 years. Where acceptance rates are available but SAT scores are not, 100 percent of the weight for the overall ranking is placed on acceptance rate. There are no instances in which SAT scores are available but acceptance rates are not.

15. Figure reflects the 2015–16 year. On average for all the years in the study, 13.6 percent of all undergraduates enrolled in bachelor's degree programs were enrolled in the 200 most selective institutions.

16. The share of independent students at the 200 most selective colleges was 15.0 percent in 1999–2000, 16.2 percent in 2003–04, 12.8 percent in 2007–08, 11.3 percent in 2011–12, and 16.1 percent in 2015–16.

17. The share of exclusively full-time students at the 200 most selective colleges was 78.4 percent in 1999–2000, 76.9 percent in 2003–04, 74.8 percent in 2007–08, 74.1 percent in 2011–12, and 69.2 percent in 2015–16. This decline has occurred fairly evenly among income quartiles.

18. The number of students has been rounded to the nearest multiple of 10 to comply with NPSAS guidelines.

19. The number of students has been rounded to the nearest multiple of 10 to comply with NPSAS guidelines.

20. Average scores on the SAT college admission test are also lower at the institutions categorized as selective in the NPSAS data set than at the 200 most selective institutions. Respectively, they are 1169 and 1207. There are also coding errors in the NPSAS data set for this variable. Highly selective institutions that do not require admissions test scores, and therefore do not report data on test scores to the federal government, appear to have been coded as "open admission" institutions for some years of the NPSAS data.

21. National Center for Education Statistics, "IPEDS: Integrated Postsecondary Education Data System," https://nces.ed.gov/ipeds/.

22. Our findings for the 2015–16 installment of the NPSAS were independently replicated.

23. We checked the sensitivity of these findings to our definition of selectivity by running the analysis for the 150 and 250 most selective colleges according to our ranking, as well as the top two tiers from the Barron's Index. While the share of students in each income quartile changes slightly, our overall findings are unchanged. The results are shown in the appendixes.

24. Authors' calculations based on NPSAS data.

25. For an example, see Jason D. Delisle, "A Misleading Claim About Who Enrolls in Elite Public Colleges," AEIdeas, August 22, 2016, www.aei.org/publication/misleading-claim-who-enrolls-in-elite-public-colleges/.

26. Confidence intervals for these estimates are displayed in Appendix E. We use NPSAS replicate weights for all tests of statistical significance.

27. The NPSAS calculates a student's net price by deducting the student's grants, scholarships, and tuition discounts from the gross price the institution charged the student. The net price is set to zero if the sum of grants, scholarships, and discounts exceeds gross price. Student loans are not deducted to calculate net price. Federal tuition tax benefits, such as the $2,500 American Opportunity Tax Benefit, are not deducted either, but a more comprehensive measure of net price would deduct them. Therefore, the actual net price figures are likely to be lower than those stated here, particularly in the later years, as the size of those benefits increased.

28. Figures are adjusted for inflation using the Personal Consumption Expenditures index. Figures do not include living expenses. Figures also reflect tuition only for students attending full time and for the full academic year.

29. Raj Chetty et al., "Mobility Report Cards: The Role of Colleges in Intergenerational Mobility" (working paper, Equality of Opportunity Project, July 26, 2017), www.equality-of-opportunity.org/papers/coll_mrc_paper.pdf.

30. Defined here as Chetty tiers 1–4 or Barron's tiers 1 and 2. See Chetty et al., "Mobility Report Cards," Online Data Table 8, http://www.equality-of-opportunity.org/data/.

31. The bottom quintile in Chetty is defined as the bottom 20 percent of households with children in the applicable birth cohort. For the 1980 cohort, the cutoff for the bottom quintile was $25,300 in today's dollars; for the 1991 cohort, it was $19,800. Note that Chetty uses the CPI-U index to adjust for inflation, whereas we use the PCE index.

32. These schools include Stanford University, Duke University, the Massachusetts Institute of Technology, and the University of Chicago.

33. Chetty's figures are within the margin of error for our estimates during some NPSAS years, but not all.

34. According to auxiliary statistics compiled by Chetty, 52 percent of students who attend college between the ages of 23 and 28 had parents in the bottom two income quintiles, compared to 29 percent of students who attend college between the ages of 19 and 22. See Chetty et al., "Mobility Report Cards," Online Data Table 6, www.equality-of-opportunity.org/data/.

35. Jennifer Giancola and Richard D. Kahlenberg, *True Merit: Ensuring Our Brightest Students Have Access to Our Best Colleges and Universities*, Jack Kent Cooke Foundation, January 2016, https://eric.ed.gov/?id=ED569948.

36. Cahalan et al., *Indicators of Higher Education Equity in the United States*.

37. Anthony P. Carnevale and Martin Van Der Werf, *The 20% Solution: Selective Colleges Can Afford to Admit More Pell Grant Recipients*, Georgetown University Center on Education and the Workforce, 2017, https://cew.georgetown.edu/cew-reports/pell20/.

38. Delisle, "The Pell Grant Proxy."

39. Ozan Jaquette, *State University No More: Out-of-State Enrollment and the Growing Exclusion of High-Achieving, Low-Income Students at Public Flagship Universities*, Jack Kent Cooke Foundation, May 2017, https://www.issuelab.org/resource/state-university-no-more-out-of-state-enrollment-and-the-growing-exclusion-of-high-achieving-low-income-students-at-public-flagship-universities.html.

40. These data come from the 2016 NPSAS. Due to the small sample size (n = 3,700), the confidence interval for this estimate is large. The share of out-of-state students who are in the high-income quartile is between 51.7 percent and 59.4 percent at the 95 percent confidence interval. For out-of-state students in the lowest quartile, the share is between 11.9 percent and 17.7 percent at the 95 percent confidence interval.

41. Catharine B. Hill et al., "Affordability of Highly Selective Private Colleges and Universities II" (discussion paper, Williams Project on the Economics of Higher Education, Williams College, Williamstown, MA, January 24, 2011), http://sites.williams.edu/wpehe/files/2011/06/DP-734.pdf.

42. Giancola and Kahlenberg, *True Merit*.

43. See variable F1SES1. National Center for Education Statistics, "ELS: 2012 Student Codebook," https://nces.ed.gov/pubs2014/ELS2012_codebook_Student1.pdf.