The New Financial Aid Policies:
Their Impact on Access and Equity For Low-Income Students?

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ABSTRACT

This chapter describes the recent growth at selective colleges of financial aid policies that target low-income students. Beyond just guaranteeing to meet financial need, these policies limit or eliminate student loans from aid packages. Many of the colleges have also increased their recruitment efforts. While early research suggests that the new aid policies have been successful at increasing the number of low-income students at selective institutions, the total number affected has been small. Ultimately, to have much of an impact on the representation of low-income students, the pool of eligible (i.e., high-achieving) students needs to be made larger by addressing academic barriers.

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I. INTRODUCTION

While the percentage of American students who attend higher education has grown substantially during the last several decades, college access remains an important problem for many students. According to the Current Population Survey, among high school graduates in 2004, only 43 percent of students from families with incomes under $30,000 immediately entered a postsecondary institution. In contrast, 75 percent of students from families with incomes over $50,000 did so. Even after accounting for differences in academic preparation and achievement by income, the gaps remain. Low-income high school graduates in the top quartile of academic achievement attended college at only the same rate as high-income high school graduates in the bottom academic quartile (Advisory Committee on Student Financial Assistance, 2001).[1]

While general postsecondary access is a problem, gaps in enrollment rates by background are even more evident among selective, four-year colleges and universities.[2] Low-income students are underrepresented at the most selective colleges and universities, both private and public. Pallais and Turner (2007) find that less than 11 percent of the students who matriculated at 19 selective colleges and universities were from the bottom income quartile. Hill and Winston (2006) find similar results in their examination of 28 very selective private colleges and universities. Their analysis suggests that only 10 percent of those enrolled came from the bottom 40 percent of the U.S. family income distribution in 2001-02.

Table 1 offers corroborating support for the absence of low-income students at the most selective colleges and universities using the Pell Grant as a proxy for low income because that federal program awards aid solely based on need.[3] In 2001-02, before all but one of the new aid policies were created, 18 colleges and universities had fewer than 10 percent of their students being a Pell Grant recipient. In fact, at Washington and Lee University, only 3.4 percent of the

[1] There are also significant gaps by income level in outcomes such as college persistence and completion. Only 36 percent of low-income students judged as college-qualified completed a bachelor's degree within eight years, while 81 percent of high-income students did so (Adelman, 2006). Students were judged to be "college qualified" if they met any of five criteria that would place them among the top 75 percent of four-year college students for that criterion.

[2] In this chapter, I define a selective, four-year college or university to be those in the "Most Competitive" and "Highly Competitive" categories of the Barron's *Guide to Colleges*. These schools tend to be in the top 50 national rankings for universities and liberal arts colleges in the *U.S. News and World Report*.

[3] As Tebbs and Turner (2005) note, some caution should be used in interpreting the share of Pell Grant recipients at a school as an indicator of its treatment of low-income students. The percentage of students with a Pell Grant is partly dependent on the school's program offerings and the characteristics of the pool of applicants as well as the share of eligible students who apply for and receive aid.

students had received a Pell Grant. In comparison, 28 percent of students at all private, four-year colleges received a Pell Grant in 2003-04 (Berkner and Wei, 2006), thus denoting how underrepresented low-income students were at the most selective private institutions.

Due to the fact that selective, four-year colleges and universities are among the most expensive and competitive institutions to attend, it is not surprising that traditionally disadvantaged groups are underrepresented at them. In particular, low-income students are ill-equipped to afford these schools without substantial financial aid. Moreover, they are less likely to have the academic achievement levels necessary for admission relative to their more affluent peers. However, the most competitive institutions may impart special resources to their students. These institutions tend to have greater student expenditures than other schools (Winston and Zimmerman, 2000) and may produce better outcomes for students (Hoxby, 1998; Bowman and Mehay, 2002). In fact, some evidence suggests that low-income and underrepresented minority students experience the greatest returns to attending these institutions (Dale and Krueger, 1999). This has called into question whether current patterns of enrollment at these institutions are acceptable. Bowen, Kurzweil, and Tobin (2005) pose the central issue: whether America's most selective, highly-resourced colleges and universities serve as "engines of opportunity" rather than "bastions of privilege" depends on the extent to which they serve the needs of students from economically disadvantaged backgrounds. Beyond calls for equity, Pallais and Turner (2007) also note that there is an efficiency argument to be made. Society has the potential to benefit from the development of extraordinary talent in the form of innovations and breakthroughs, and so it is important to give students who are likely to benefit substantially from attending these institutions (i.e. high-achieving individuals regardless of their income level) the opportunity to experience the peer and financial resources of these most competitive institutions regardless of family background.

The public has increasingly called for additional efforts to increase the representation of low-income students in higher education in general and specifically at selective institutions. The problem is multifaceted, and a range of solutions are necessary to increase access, including addressing differences in academics, but one clear barrier for low-income students is cost. As a result, the United States has a long history of financial aid programs designed to help increase enrollment, improve access, and enable choice. During the 2008-09 school year, the federal and state governments spent over $2.5 trillion on student grants that do not need to be repaid with the

hope of encouraging enrollment and making the educational investment more affordable (College Board, 2009a). However, many students still have substantial unmet need even after accounting for all government sources of aid. Colleges and universities therefore have a potential role to play to help students finance their educations.

Institutional financial aid has long been a tool of colleges, particularly selective schools. Institutions often craft their financial aid policies to maximize tuition revenue, attract desirable students, and balance the blend of students who attend their campuses (McPherson and Schapiro, 1998). Aid can also serve to advance their public service mission by directing funds to low-income students. A handful of top universities even meet the full unmet financial need of students. However, in 1998, a more generous set of institutional financial aid policies began to surface with the decision by Princeton University to meet full need without requiring students to take out loans. Princeton was followed by the University of North Carolina at Chapel Hill in 2003, and soon after, a wave of other colleges began to adopt similar policies. Beyond just being more generous in terms of grant aid, these new aid policies are framed in simple terms, often connecting to specific family income levels rather than much more complicated benchmarks determined by long financial aid forms. Harvard exemplifies how these new financial aid policies are different. The policy uses plain language: the university will cover the entire cost of attendance through grants rather than loans for families with incomes less than $40,000.[4]

This chapter discusses the growth, characteristics, and impact of these new financial aid policies. I discuss the context for these policies and how they have affected student affordability at the most selective colleges and universities. Furthermore, I consider the potential for these policies to reduce disparities in higher educational access and opportunity. This is heavily dependent on whether there are enough high-achieving, low-income students who might potentially benefit and be swayed by the offer of additional financial aid. Moreover, these students must apply to selective institutions for the new aid policies to have the potential to have an impact. Unfortunately, recent research suggests that many low-income students with the achievement levels necessary to be admitted to these schools do not bother to apply (Avery and Hoxby, 2010). This suggests that the problems of the current system go beyond funding and

[4] The student must first cover their expected family contribution. Typically with these policies, the college will meet need after the family contribution and application of all government aid.

broader outreach initiatives are needed along with policies to improve the pipeline of high-achieving, low-income students.

The next section begins by describing the affordability problem faced by low-income students. Then, I introduce the new financial aid policies and detail their features. Next, I review the literature on the effects of financial aid on college enrollment and early research on the impact of the new financial aid policies. The chapter concludes with speculation on the future impact of these programs and what is necessary to improve access for low-income students to selective colleges and universities.

II. THE COST BARRIER FOR LOW-INCOME STUDENTS

Although there are many barriers to college access and success, a major impediment is cost. During the 2009-10 school year, the average list tuition and fees at public four-year colleges and universities was $7,020 for the academic year, with average total charges amounting to $15,213 (College Board, 2009b). Without any financial aid, the total cost amounts to 30 percent of the annual median family income (U.S. Census Bureau, 2009). Concerns about affordability are even greater at private four-year colleges and universities, which charged an average list tuition price $26,273, or $35,636 including room and board. This constitutes over half the annual income of a median family (College Board, 2009b). As the federal Commission on the Future of Higher Education concluded, "There is no issue that worries the American public more about higher education than the soaring cost of attending college" (2006, p. 19).

The Role of Government Grants

To help address these skyrocketing costs, students can apply for a myriad of grants and scholarship, loans, and other postsecondary support programs. The government has long invested in financial aid policies designed to increase college attendance due to the numerous economic and social benefits related to educational attainment, including higher earnings, a lower likelihood of unemployment, and better decisions about health (Baum and Ma 2007; Oreopoulos and Salvanes 2009),. The process to get financial aid begins with the Federal Application for Financial Student Aid (FAFSA), which is also often required to apply for state and institutional aid. The FAFSA collects information on family income and assets to determine the Expected Family Contribution (EFC), the

amount that a family is estimated to be able to provide towards higher education expenses. The size of the family, the number of family members in college, and the age of the oldest parent, as well as information on the student's earnings and assets all affect this calculation. To determine a student's financial need, the government subtracts the calculated family contribution (i.e., the EFC) from the total cost of attendance.[5] This amount of need, in combination with the student's EFC, determines whether he or she is eligible for particular government grant and loan programs. Students who have a low EFC *and* financial need are eligible for federal need-based aid, such as the Pell Grant, which is the largest need-based aid program in the country. It is awarded to students who attend at least part-time, and the majority of Pell recipients come from families with incomes in the lowest economic quartile (King, 2003). For this reason, as shown in Table 1, Pell receipt is often used as a proxy for the number of low-income students at an institution. Students with financial need may also be eligible for other Federal grants and the Federal Work Study program, which subsidizes the wages of the students employed in on-campus jobs.

Although the costs faced by students are much less once grant aid is considered, the remaining costs that families must meet are often substantial. Long and Riley (2007a) document the significant amount of unmet financial need faced by many students, particularly for students from low-income backgrounds and students of color. Unmet need is defined as the cost of education minus the EFC and financial aid. After accounting for the family's expected contribution and the receipt of all grants, students still dependent on their parents for support faced an average unmet need of $7,195 in 2003-04. For full-time, full-year students, this unmet need was even greater ($8,323).[6] Therefore, although billions of dollars are spent each year on financial aid, the above unmet need figures suggest that government grants are not enough to cover the costs of higher education for a low-income student, especially at selective four-year institutions, which tend to be among the most expensive schools.[7] While recent legislation has increased the amount of federal financial aid available,[8] unmet needs remains a significant problem.

[5] The total cost of attendance is pro-rated based on the student's enrollment intensity (whether they attend full- or part-time) and includes tuition, fees, room and board, and other costs at the institution the student attends.

[6] It is important to note that the information on private and outside financial aid is self-reported and may not capture all of this aid. Credit card debt is not included in these calculations.

[7] It is also worth noting that these need and unmet need calculations are made assuming the family contributes the EFC amount. However, the calculation of the EFC by the federal government has been criticized on a number of grounds including the assumptions it makes about parental and student earnings based on data from the previous year. Anecdotal reports suggest many families have difficulty meeting the expectations set by the EFC.

[8] With the federal Health Care and Education Reconciliation Act, signed March 30, 2010, the budget for Pell Grants increased more than $40 billion.

Loans and Concerns about Debt Aversion

Increasingly, students are turning to loans to cover their remaining college costs. Individuals with college expenses are eligible for federal student loans through the Stafford Loan Program, and students may also be able to take out private student loans. In 2009-10, the Federal Stafford Loan Program awarded over $32 billion in aid, and by best estimate, an additional $12 billion was given in private loans (College Board, 2009a). The increasing use of loans has translated into growing debt levels. Long and Riley (2007b) found that fourth-year undergraduates at public colleges faced real cumulative debt amounts 76 percent higher in 2003-04 compared to 1992-93 and had an average of $17,507 in loans by their fourth year in 2003-04. Fourth-year undergraduates at private colleges borrowed an average, cumulative amount of $21,946 in 2003-04, a 57 percent increase over the previous amount 10 years ago after accounting for inflation.

The shift in aid policy favoring the use of loans has had important implications for college access and success. Loans are not a palatable solution for some students. Several studies suggest that some students are reluctant to take out loans due to the complexity they introduce and fear of the repayment conditions (Burdman, 2005). Financial aid administrators report anecdotally that students from traditionally disadvantaged backgrounds often are unwilling to incur substantial debt to attend college. This may be related to socio-economic differences, as suggested by a 2003 report by ECMC Group Foundation that investigated cultural barriers to debt. Baum (2003) also finds that the prospect of substantial borrowing discourages enrollment among some students, especially those from low-income and underrepresented groups. It is unclear how many students are kept out of college altogether or from attending more expensive colleges due to an aversion to debt. As discussed below, addressing concerns about loan aversion are a central hallmark of the new financial aid policies.

The Historic Role of Institutional Financial Aid

Even after taking into account all government grants and loans, most students still have unmet need (Long and Riley 2007a) thereby suggesting that college and universities can play an important role by providing additional financial assistance. Most four-year colleges and universities give some financial aid. According to the College Board (2009a), at four-year private

colleges and universities in 2007-08, institutional grants covered about 25 percent of tuition and fees for students at the most expensive colleges and approximately 35 percent at lower-priced school. At the public universities, institutional financial aid is not as plentiful. During the same year, institutional grants at public four-year institutions averaged $1,340 per low-income, full-time student and $900 for those from upper income families (College Board, 2009a).

Among highly selective institutions, a handful of colleges at the top guarantee to meet the full financial need of students, and even lower ranked selective colleges make some attempt to meet student financial need through a combination of grants, loans, and work study. Hill, Winston, and Boyd (2004) document the net prices for students attending selective private institutions that are part of Consortium on Financing Higher Education (COFHE).[9] Even before the recent wave of new financial aid policies, low-income students enjoyed significant discounts off the prices listed in college catalogs, which topped $33,000 during the 2001-02 school year. However, the out-of-pocket cost averaged about $7,500 for students in the lowest income group (with family incomes less than $24,000) and $8,500 for students in the next income band (family incomes $25,000 to $41,000). At the selective public universities, tuition prices tend to be less expensive in terms of list price, but given the current climate of declining state appropriations to support university policies, their net prices can often be more expensive than their private counterparts. However, many of the public flagships institutions have need-based grant programs, such as the Longhorn Opportunity Scholarship program at the University of Texas at Austin. Some states also have large, need-based grant programs that low-income students can use at their selective, public institutions. The Cal Grant program in California is an example of this.

Similar institutions often vary substantially in the amount they offer (Hill, Winston, and Boyd, 2004) and by the extent to which the financial aid packages they offer are made up of loans versus grants. Given all the variation in the size and composition of financial aid packages, it is not surprising that there is a great deal of variation in the representation of low-income

[9] COFHE is an institutionally-supported organization of 31 highly selective, private liberal arts colleges and universities. The member institutions are: Amherst College, Barnard College, Brown University, Bryn Mawr College, Carleton College, Columbia University, Cornell University, Dartmouth College, Duke University, Georgetown University, Harvard University, Johns Hopkins University, MIT, Mount Holyoke College, Northwestern University, Oberlin College, Pomona College, Princeton University, Rice University, Smith College, Stanford University, Swarthmore College, Trinity College, University of Chicago, University of Pennsylvania, University of Rochester, Washington Univ. in St. Louis, Wellesley College, Wesleyan University, Williams College, and Yale University.

students at top schools. As shown in Table 1, for example, at Columbia University the share of Pell Grant recipients is nearly 15 percent while at other Ivy League institutions like Harvard University and Brown University the measure does not exceed 10 percent.

The Importance of Information and Outreach

Another reason that colleges differ in the proportion of their student bodies that are low income has to do with outreach. In addition to cost, a lack of information about college options and how to navigate the preparation and application process are major impediments to higher education for many students, particularly those from low-income families. College attendance is the culmination of a series of steps and benchmarks, and the current landscape is too complex and difficult for many families to decipher and navigate. First, students must aspire to attend college or derive aspirations from their parents, teachers, and/or mentors. Additionally, students must prepare academically for college by taking the proper classes and getting a sufficiently high grade point average, particularly if they wish to attend selective schools. To gain entry into a four-year college, students must also register for a college admissions exam (i.e. the SAT or ACT). Finally, students must fulfill the requirements for high school graduation. Research by Kane and Avery (2004) showed that low-income high school students possess little understanding of how to handle this admissions process or knowledge about actual college tuition levels. Other work has also found a significant lack of information among prospective college students in general (Ikenberry & Hartle, 1998; Horn, Chen, & Chapman, 2003).

One example of the complexity students face is the financial aid system. As described above, students and their families must complete the FAFSA to determine their eligibility for government financial aid, and the form is usually the starting point for determining institutional aid. However, students and their families are often confused and even deterred by the form (ACSFA, 2005). An American Council on Education (ACE) study found that 850,000 students who would have been eligible for federal financial aid in 2000 did not complete the necessary forms to receive such aid (King, 2004). The Spellings Commission on the Future of Higher Education recently acknowledged problems with the current aid process by concluding that some students “don’t enter college because of inadequate information and rising costs, combined with a confusing financial aid system” (2006, p. 7).

Several studies underscore how important information is in determining college access. To address the complexity within the financial aid application process, Bettinger, Long, Oreopoulos, and Sanbonmatsu (2009) implemented and tested the effects of an intervention that streamlined both the aid application process and students' access to accurate and personalized higher educational information. Using a random assignment research design, H&R Block tax professionals helped a group of eligible low- to middle-income families to complete the FAFSA. Then, families were given an estimate of their eligibility for federal and state financial aid as well as information about local postsecondary options. Results from the project confirm suspicions that a lack of information and the complexity of the aid process hinder low- and moderate-income students' ability to apply for aid and enroll in college. Individuals who received assistance with the FAFSA and information about aid were more likely to enroll in college and received larger aid awards on average (Bettinger, Long, Oreopoulos, and Sanbonmatsu, 2009). These results suggest that streamlining the application process and providing better information could be effective ways to improve college access. Thankfully, the U.S. Department of Education has taken steps to simplify the form and allow applicants to load income information into the FAFSA from their tax forms.[10]

While information is generally a problem, it appears to be an especially significant barrier in terms of selective colleges and universities. This may be due to perceptions about affordability or likeliness of being admitted and the lengthy college applications typical of selective institutions along with the additional financial aid forms often required. More is needed to help students understand their options at selective institutions. As Richard Levin, President of Yale University, explained in 2005, students just did not know about the university's generous financial aid policies. "In low-income areas, in rural areas, in the Midwest and the South, our aid policies simply didn't have enough visibility" (quoted in Bombardieri, 2005). The new financial aid policies represent an attempt to fix this.

III. THE NEW FINANCIAL AID POLICIES

[10] In June 2009, the Department of Education (DOE) announced a plan to use skip logic in the online version of the FAFSA to eliminate questions that do not apply to some students as well as give students instant estimates of the Pell Grant and student loan eligibility. The DOE is also piloting ways to transfer information directly from the IRS to the online FAFSA (U.S. DOE 2009). However, these efforts still require families to be aware of the FAFSA and to be able to complete it online, preferably with high-speed internet.

Selective college and universities have several options in the quest to improve the enrollment of low-income students. They could try to grow applications, perhaps through outreach. In addition, they could give low-income students preference in the admissions process. While some institutions have chosen to act on these two options, the most visible initiatives have focused on trying to increase matriculation by changing institutional financial aid policies, sometimes in combination with additional outreach. Colleges could increase the total amount of aid they give the students. An alternative is to change the composition of aid offered. As discussed above, loans may not be as appealing to students because they must be repaid, and so by changing the mix of grants and loans, a college may increase its appeal to students. As described below, institutions have chosen a mixture of both strategies.

The new financial aid policies highlighted in this chapter are by no means the only policies designed to direct support to low-income students. However, unlike other initiatives, the policies discussed here have the explicit goal of increasing the enrollment of low-income students, and many do so by limiting or replacing the amount of loans the student is required to take. They also convey a much more simplified message by framing the aid in terms of family income benchmarks instead of complex financial aid formulas. All accepted students are eligible for the aid, and so the only merit criteria applied is that the student must be admitted. This again simplifies the message given to students because the awards are not limited beyond the income threshold.

"No Loans" at Princeton University

Princeton University initiated the first program to fit the description of the new kind of institutional aid policies. Before the policy change, Princeton gave students a combination of loans, scholarships, and subsidized employment (i.e. work study) to meet their financial needs. Beginning with the 1998 freshman class, the loan component was replaced by grants thereby eliminating institutional loans for low-income freshmen. In essence, Princeton attempted to appeal to low-income students by changing the composition of their financial aid packages in favor of grants that do not need to be repaid. For example, a low-income student who would have been given $5,000 in loans per year was instead given $5,000 additional in institutional grants. The university also changed their definition of low-income student with the policy change. Before 1998, the school used a definition based on the students expected parental

contribution, which is similar to the way the Pell Grant is awarded.[11] After the introduction of the "no loans" policy, students began to be classified as low-income if their family income was less than the national median. In 1998, the admissions office used the 1996 national median of $41,955 as its cutoff, since that was the latest year of data available at the time. University officials estimated that the new aid program would cost approximately $1.7 million per year by the time it was fully phased in (Linsenmeier, Rosen, and Rouse, 2006).

According to officials, the university decided to implement the change for two major reasons. First, they wanted to ease the financial burden on students. Second, the university wanted to counteract a drop in the number of low-income students matriculating. In essence, officials stated that the policy was meant to help the institution fulfill its "commitment to providing financial aid to all students" (Linsenmeier, Rosen, and Rouse, 2006). To provide some context, the cost of attendance at Princeton including room and board had increased from $27,729 in 1988 to $34,171 in 2000 (all dollar figures expressed in 1999 dollars). Their financial aid packages also increased. According to Linsenmeier, Rosen, and Rouse (2006), standard financial aid package in 1988 included $2,028 in job aid, a base loan amount of $3,731, and a median of $11,865 in grants. By 2000, these amounts were $2,109 in job aid (up 4.0 percent), a base loan amount of $4,063 (up 8.9 percent), and a median of $14,842 in grants (up 25.1 percent).

The policy was announced in January 1998 creating the possibility that students would be influenced by the change as early as the admissions cycle for the fall 1998 entering class. However, Princeton did not substantially change their recruitment strategies for the early cohorts affected by the change. In their examination of the effects of the aid program, Linsenmeier, Rosen, and Rouse questioned the Princeton Director of Admissions about changes in outreach to high school students to encourage them to apply and institutional changes in strategy to convince accepted students to attend. While some new approaches were implemented to appeal to low-income students in the entering class of 2001, for research methodology reasons, these students are not included in the Linsenmeier, Rosen, and Rouse analysis of the initial effects of the new aid program.

The introduction of the Princeton financial aid policy was quite newsworthy. As noted by their Office of Communications (2001), Princeton was the first of its peer institutions and

[11] The Pell Grant is awarded to students with expected family contributions (EFC) below a certain cutoff. For students still dependent on their parents, the EFC is the sum of the expected parental contribution and the contribution from the student's own resources.

possibly the first American university to eliminate loans (with the exception of the military service academies). This was in direct opposition to the national trend of increasing loans and student debt. While no other school matched Princeton's policy immediately, several peer universities did increase their financial aid awards. For example, according to the *Chronicle of Higher Education*, six days after Princeton's announcement, Harvard increased its aid budget by $8.3 million and gave all aid recipients an additional $2,000 in grants. Five days after this, Duke announced that it would extend need-based aid to international students, and six days later, MIT announced it would increase the size of grants for undergraduates by $3,100. This was just the tip of the iceberg as more dramatic changes in institutional aid policy were to come several years later.

The Growth of the New Financial Aid Policies

The expansion of the new aid policies has been swift and now includes approximately 57 mostly selective colleges and universities. The Project on Student Debt, an initiative of the Institute for College Access and Success, has been tracking and analyzing these programs to determine the actual costs students face.[12] Table 2 provides a timeline of the institutions that have introduced financial aid policies that have increased support to low-income students. While many of the institutions are highly-resourced private colleges and universities, there are a fair share of public universities.

After Princeton, the next wave of policies originated at selective public universities. In 2003, the University of North Carolina at Chapel Hill (UNC-CH) began the Carolina Covenant program. It was phased in over a four-year period, beginning with the entering class in fall 2004. Students and their families were eligible if they were at or below 150 percent of the federal poverty level; in 2005, this threshold was raised to 200 percent of the poverty line. Covenant-eligible students are awarded federal, state, institutional, and/or private grants and scholarships and the amount of Federal Work-Study that can be earned by working approximately 10-12 hours per week in an on-campus job. This combination of grants, scholarships, and Work-Study gives Covenant-aided students the opportunity to earn a baccalaureate degree at Carolina without having to assume student loans to meet their financial need.[13]

[12] Information about all of the polices is available at their website: http://projectonstudentdebt.org/pc_institution.php
[13] Source: Carolina Covenant website, http://www.unc.edu/carolinacovenant/about.html

A year later, the University of Virginia (UVA) and University of Maryland at College Park established their own programs. UVA's financial aid program is called AccessUVa. The university meets 100 percent of need for all students, and AccessUVa offers loan-free packages for low-income students and limits loans for all other students to 25 percent of the in-state cost of attendance (the remaining need is met with grants). In this way, the policy attempts to address affordability issues for low-income students as well as the concerns of middle-income families. The financial aid office also offers counseling to help admitted students complete the financial aid application and consider other options.[14] The University of Virginia coupled their program with a publicity campaign, including television ads declaring: "Got the brains but not the bucks? The door is open" (Bombardieri, 2005).

The UNC-CH and UVA plans are among the most generous of the public university initiatives and very similar to the programs at private universities. Many of the other state programs are less generous. For example, the University of Illinois' program, the Illinois Promise, only eliminates debt for the lowest income students, those who earn below the poverty line. There is also more variation among the programs at public than private universities. Instead of removing loans, the University of Michigan's M-Pact program increases aid packages for a range of low-income students. By contrast to the private universities, all of the programs at the public universities focus on helping in-state students, with the exception of UVA (Pallais and Turner, 2007).

Among the private institutions, one prominent example is the one created by Harvard University. At a February 2004 meeting of the American Council on Education, then-President Lawrence Summers announced the creation of the Harvard Financial Aid Initiative. Families with incomes below $40,000 no longer needed to make payments to the cost of attendance. In addition, students with family incomes between $40,000 and $60,000 were expected to contribute $1,250 less on average than previously. Coupled with the reductions in cost to families, Harvard also increased outreach efforts. This included targeting students likely to benefit with school visits, letters from the admissions office, telephone calls from current Harvard students, and outreach by Harvard alumni in their local areas (Avery, Hoxby, Jackson, *et al*., 2006)

[14] Source: The AccessUVa website, http://www.virginia.edu/financialaid/access.php

Table 3 summarizes the eligibility criteria of a number of the new financial aid policies. There are several types of programs. First, the most generous programs have eliminated loans for all students, regardless of income. After initially limiting this benefit to low-income students, Princeton expanded the benefit to all students in 2001. About 14 institutions fit into this category. An additional group have abolished loans for certain income levels. Columbia University, for instance, has eliminated loans for students with family incomes below $60,000. At the University of Pennsylvania, the cut off is a higher ($90,000). As noted earlier, other than income as a criterion for aid, other universities, particularly some of the public universities, limit their no-loan policies to state residents and even to first generation college students, those whose parents did not earn bachelor's degrees (e.g., the University of Florida).

To give a sense of the generosity of these programs, Table 4 details the "bottom line" calculations done by the Project on Student Debt. The net prices for students with family incomes of $20,000 and $40,000 are shown for the 2009-2010 school year. At a handful of schools, the lowest income students would face a net cost of zero, but at many more institutions, such students would face a net cost of between 10 to 20 percent of their family's income. This net cost still is a significant discount relative to the total cost of attendance, which can reach $55,000. There is much more variation in how students whose families make $40,000 or more are treated. Many also receive generous aid packages, but at some schools, these students are not eligible for the new aid packages that limit loans.

IV. FINANCIAL AID AND COLLEGE ENROLLMENT: ARE THE NEW POLICIES IMPACTING ACCESS AND EQUITY?

While a number of aid programs that target low-income students now exist, an important question is whether they have increased access and equity for students. As documented in the literature, financial aid can be an important tool to increase college access and foster choice. This section highlights the major conclusions from this work and the lessons learned based on the characteristics of the most effective policies. Then, I discuss what is known about effects of the new aid policies and connect this research to the larger literature.

Does Financial Aid Impact College Enrollment and Choice?

Several studies document the importance of price and financial aid in college enrollment decisions. For example, Kane (2003) uses a regression discontinuity research approach to analyze the impact of the Cal Grant program. His results suggest large impacts (3 to 4 percentage points) of grant eligibility on college enrollment among financial aid applicants, with larger impacts on the choice of private four-year colleges in California. Van der Klauuw (2002) also examines the effects of aid on college choice by exploiting discontinuities in an eastern college's aid assignment rule. He finds that financial aid is an effective instrument for colleges to compete with other institutions for students.

However, not all aid programs have been found to influence student decisions. The mere existence of an aid program is not enough to encourage enrollment as the visibility and design of the program also matters. In several cases, researchers have failed to document large, general responses to the introduction of financial aid programs (e.g., the Pell Grant). On the other hand, research on examples of highly-publicized financial aid programs characterized as being simpler in design and application has found large enrollment responses. For example, Dynarski (2000) examines the impact of the Georgia HOPE Scholarship Introduced in 1993, the program pays for the in-state public tuition of Georgia residents with a B-average in high school; residents choosing to attend in-state private colleges received $3,000 during the early years of the program. The HOPE Scholarship is simple in design and much effort was made to publicize the program as well as train high school guidance counselors on how to help their students access the program. Dynarski (2000) compared enrollment rates in Georgia to other southern states before and after the program. She finds that Georgia's program has had a surprisingly large impact on the college-attendance rate of middle- and high-income youth. The results suggest that each $1,000 in aid (in 1998 dollars) increased the college attendance rate in Georgia by 3.7 to 4.2 percentage points. She also found a large impact on college choice

In summary, the research has established the importance of price and financial aid in students' decisions about college. However, in order to have an impact on behavior, students and their families must be aware of the policies designed to help them. Unfortunately, as noted above, lack of awareness appears to be a major barrier to college access as many students lack

accurate information about higher education costs and financial aid.[15] Most studies find that students and their parents greatly overestimate the costs of college (Horn, Chen, & Chapman, 2003; ACSFA, 2005). There is also a lot of misinformation about financial aid among parents and students (Sallie Mae Fund, 2003). Awareness about aid and college costs appears to be especially limited among low-income students (Sallie Mae Fund, 2003; Kane and Avery, 2004). The low levels of awareness about aid and the misinformation among many families has serious implications for the effectiveness of any policy or program. In a world with many misinformed or unaware families, unless a program is highly publicized and simple to access, it is unlikely to have a major impact on college enrollment. This point has influenced how many of the new aid policies were implemented.

Institutional Perspectives on the Impact of the New Aid Policies

The literature on the effects of the new aid policies is limited. However, the institutions involved perceive that their policies have been quite successful, and they point to increases the number of low-income matriculants. A 2005 article in the *Boston Globe* documents some of the early results. At Harvard, the number of students from families with incomes less than $60,000 increased from 245 to 296 in one year, a 21 percent increase. Meanwhile, Princeton's "no loans" policy resulted in an increase in the percentage of freshmen whose parents earned less than $50,000 from 11 percent to 16 percent over the course of the first four years of the change (Bombardieri, 2005). At the University of Virginia, an internal staff publication highlighted an increase in the expected matriculation of students with family incomes below 200 percent of the poverty line (Heuchert, 2005). Pallais and Turner (2007) find evidence of this: there was a 50 percent increase in the number of low-income students who accepted offers. Among those whose family incomes were less than 200 percent of the poverty line, the number grew from 133 students entering in fall 2004 to 200 students matriculating in the fall of 2005.

At least for some schools, increasing access to low-income students does not appear to result in a decrease in student ability or a substantial increase in financial expenditure. Harvard, for example, asserts that it was able to recruit additional low-income students without reducing the quality of students accepted. Average scores on the SAT had not changed for the entering

[15] The amount and accuracy of information about tuition could affect other types of behavior important for college access and persistence. For example, if college-going is perceived as unaffordable by students, parents, and counselors, then individuals may not choose to prepare academically for college-level work.

freshman class. Meanwhile, the financial cost of this increased generosity was modest. It added about $2 million to the Harvard financial aid budget, which totaled $85 million at the time of the change (Bombardieri, 2005).

While the institutions give much of the credit to the generosity of the new financial aid policies, they also acknowledge the important role of outreach. Harvard, for example, paid for campus visits by low-income students and waived the application fee for more than 2,300 students. On the other hand, the University of North Carolina at Chapel Hill did not experience the increases in low-income students after the introduction of their "no loans" policy. However, they admit that they had not yet increased their outreach efforts and hoped for positive effects after doing so (Bombardieri, 2005).

Have the New Financial Aid Policies affected Access? The Research Literature

While increases in the representation of low-income students suggests that the policies have had a positive effect, more rigorous analysis is needed to understand whether these effects can truly be attributed to the new aid policies and related changes or if they are due to other trends and factors. Few schools have been able to do such analysis or released their results, but several rigorous studies exist that focus on the effects of the new aid policies at Princeton and Harvard.

Linsenmeier, Rosen, and Rouse (2006) examine the effects of the financial aid program introduced in 1998 presumably at Princeton University.[16] They compare enrollment rates before and after the change and relative to a control group of students not eligible for the aid (i.e. the differences-in-difference research methodology) to produce causal estimates of the effects of the policy change. While the program increased the likelihood of matriculation among low-income students by 3 percentage points, the estimate is not statistically discernible from zero, and so the effect is not considered robust. However, low-income minority students do appear to have been affected as they were between 8 and 10 percentage points more likely to matriculate, and the result is statistically significant. Other research has also found minority students to be more responsive to aid than other groups. For instance, Jackson (1990) found African-American students were twice as responsive to grants as white students. The college enrollment decisions

[16] Similar to Princeton University, the anonymous institution replaced the loan component in low-income students' financial aid pages with grants beginning with the class of 2002 (which entered in fall 1998). Princeton was the only institution to make such a change at that time.

of African-American students, however, were not responsive to loans again suggesting that the Princeton policy may have been especially appealing to this group.

The reasons for the differential effect of the "no loans" policy by race presents a bit of a puzzle, and Linsenmeier, Rosen, and Rouse posit several possible reasons to explain the difference in reactions by race. One possibility is that students were not fully aware of the policy in order to react to it. As noted in the literature, lack of awareness could explain the lack of finding a reaction to some financial aid policies, and if this hypothesis is true, this underscores the necessity of the new financial aid policy to combine their programs with additional outreach. When examining application patterns, Linsenmeier, Rosen, and Rouse only found a small increase in interest in Princeton among low-income students using data on SAT test-takers; there was no change among minority applicants. The authors also suggest that this may be an example in which students were not making rational decisions. Although Avery and Hoxby (2004) document that highly-motivated, high-achieving students generally make decisions that are consistent with rational decision-making, some do not, perhaps due to a lack of sophistication. Again, informational outreach could help address this problem.

It is possible, however, that the lack of a general response among low-income students could be due to other reasons, such as the fact that peer institutions reacted to Princeton's policy by making their financial aid more generous. Because of these changes at other institutions, Princeton would not have been much more appealing to low-income students relative to competing schools. The authors also consider that fact that the change in financial aid was too small to elicit a large, general response among low-income students. The loan replacements of approximately $4,000 per year were fairly small relative to the total cost of attendance and the average financial aid package for a low-income student, which was $25,734 at the time (Linsenmeier, Rosen, and Rouse, 2006). Finally, the authors hypothesize that minority students may not consider loans as aid if they have greater uncertainty about the future returns to college and therefore worry about the ability to repay.

Avery, Hoxby, Jackson, et al. (2006) evaluate the effects of the first year of Harvard's Financial Aid Initiative. They find that the policy had a significant effect on the number of low-income students who matriculated, and this appears to have been due to the university's ability to attract a larger pool of low-income applicants. Once admitted, this group enrolled at a similar rate as in previous years resulting in a larger number of low-income students. The authors

summarize the results as being due to the university taking advantage of an untapped supply of high-achieving, low-income students.

These studies estimate the effects of the new aid policies using rigorous designs and methodologies. However, they give an incomplete picture of the effects of the reforms. Part of the issue is that each study only gives a sense of the effects of a policy change at one institution. These evaluations are what economists would call *partial* equilibrium results. In essence, the studies hold constant the actions of all other colleges and universities. However, as seen when Princeton first introduced its policy, peer institutions are likely to respond by changing their financial aid policies. Estimation of the true effects of the new policies, or *general* equilibrium results, would entail taking into account how one school's change would trickle down in terms of the actions of other institutions, which then would encourage additional colleges to respond. The reactions of the other institutions then might affect the decisions of low-income students perhaps causing students to re-sort among schools, or if peer institutions match the policy of the original institution, the end result could be no change. The overall effects depend largely on whether new students are introduced into the system of selective colleges as a result of the policy; otherwise, as discussed below, schools will result in just trading students among themselves.

V. THE FUTURE OF THE NEW AID POLICIES: ARE THEY LIKELY TO IMPACT ACCESS FOR LOW-INCOME STUDENTS?

Although the initial effects of the new financial aid policies are hopeful, it is still unclear whether these policies will truly have an impact on the representation of low-income students at selective institutions. The long term effects of these policies depend on several factors. First, is there is a large enough pool of high-ability, low-income applicants for the schools to accept? Second, are the low-income students who have the necessary achievement levels applying to selective institutions? These factors can be summarized as questions of whether there are enough students and if they apply to selective colleges?[17] Because it is unlikely that the current pool of high-achieving, low-income students is large enough to substantially impact

[17] It is also important for institutions to give low-income students a fair chance in the admissions process by accepting those who apply and are qualified. Based on the experiences of institutions that already have aid programs, it appears admissions committee are choosing to accept these students without a detrimental effect on measures of student quality, like test scores.

representation at very selective colleges, the chapter ends by also considering other types of reforms that might be necessary to increase the impact of these policies.

Are there Enough High-Achieving, Low-Income Students?

Concerning the first issue, several researchers have investigated whether the size of the pool of high-achieving, low-income students is large enough for the new aid policies to have a significant impact. Of course, there is the question of how to define "highly able." Starting with a definition of students who score a minimum combined SAT score of at least 1110, Hill and Winston (2006) note that 22 percent of the test takers who meet that criterion are from the two lowest income quintiles (i.e. the bottom 40 percent of the income distribution). They then consider whether, at a minimum, selective colleges and universities could have the same percentage of low-income students as there are highly-able, low-income students in the national population, or 22 percent using the 1110 benchmark. Focusing on the COFHE schools, a consortium of 31 very selective, private colleges and universities, they note that presently about 10 percent of students at those schools are low income. This leaves a gap of 12 percentage points, and Hill and Winston calculate that the schools would need to increase their enrollment of low-income students by 120 percentage each year, more than doubling the number of entering low-income students from 2,750 to 6,050, in order for the schools to be representative of the pool of high-achieving, low-income students.

Building from those calculations, Hill and Winston consider whether there are enough low-income students with high test scores to make the needed admit rates plausible. In 2003, approximately 109,000 students from the lowest two income quintiles scored 1110 and above on the SAT leading the authors to conclude that there are enough high-ability, low-income students in the United States for their sample of very selective, private colleges and universities to enroll a class that mirrors the national population. These schools would need to admit 5.5 percent of the 109,000 qualifying students nationwide. However, as the definition of "high ability" becomes more restrictive, the percentage of the highly-able, low-income student population that would need to be enrolled at COFHE schools grows. For instance, if the definition of high ability is those who score at least 1300, then the COFHE schools would need to accept 22 percent of the 20,000 qualifying students. This suggests that the number of high-ability, low-income students quickly dwindles as one goes up the selectivity spectrum.

An important implication of the calculations by Hill and Winston is that selective institutions may have to fight over the limited pool of low-income students in order to increase their own numbers, and the competition becomes fiercer as the institutions become more selective. This is an important concern about the short run effects of current efforts: the new financial aid policies may just attract high-achieving, low-income students who would have previously gone to other four-year colleges and universities. Essentially, schools may just trade the limited pool of qualified student among themselves. However, to have real impact, these policies must have some part in encouraging the creation of *additional* high-achieving students among the low-income population. The hope is that by sending signals about the affordability of these top schools, the institutional aid programs may increase a student's motivation to study and thereby have a long term effect on expanding the pool of qualified candidates.

Do High-Achieving Students Apply?

The above calculations assume that the students with high enough achievement levels take the time to apply to selective colleges and matriculate when accepted, but is this the case? Recent research suggests that many low-income students with the achievement levels necessary to be admitted to these schools do not bother to apply. In their analysis of the Harvard program, Avery, Hoxby, Jackson, *et al.* (2006) found that many low-income students likely to qualify for admission do not apply. This suggests that the problems of the current system go beyond the selective nature of college admissions at these institutions, and there was a lack of information about the resources available to students before the new aid policies. However, this problem still appears to be relevant given new evidence by Avery and Hoxby (2010). They use recent data on high-achieving, low-income students, and find that these students still often only apply to one non-selective institution rather than a selection of the more competitive colleges and universities.

Information about the expanded institutional financial aid resources is not enough. As noted above, the process of getting into a selective institution involves multiple steps even after taking the right classes in high school and doing well in them. Student must take the appropriate college examinations, fill out the often long college applications, complete the FAFSA, and perhaps even do an interview. Whether the new aid policies will have a serious impact on access may depend on the degree to which the initiatives also include educating and helping students through these hurdles. As Avery and Hoxby (2010) document, many of the students who do not

apply are in high schools that rarely have students who might be candidates at these selective colleges and universities, and so advising is inadequate. To increase application rates, colleges will need to do a better job reaching out and guiding these students, and high schools will need to play a stronger role in encouraging the students.

Improving the Pipeline: What Else do Low-Income Students Need?

While research suggests that the new aid policies are being successful at increasing the number of low-income students at selective institutions, many of the percentage increases quoted by institutions are small in absolute numbers. For instance, at Harvard, the 21 increase in low-income students in the freshman class translates to only 51 additional individuals. This leads to questions about whether the impacts of these programs are large enough to really change the state of access for low-income students.

One issue is that the pool of eligible students needs to be made larger. The Hill and Winston (2006) analysis points to the fact that the bottom 40 percent of students in terms of income are only 22 percent of the students who score above the 1110 point threshold. Using 1300 as the benchmark, the bottom two income quintiles make up only 16 percent of students. This suggests that to truly increase the representation of low-income students at selective colleges and universities, it will be important to increase the size of the pool of students with achievement levels high enough for them to be admitted. These means one must focus on improving the pipeline of students even before the final years of college preparation and application. Beyond just the issue of the size of the pool, some question whether financial aid can overcome the long-term influence of family income and background (Carneiro and Heckman, 2002). Financial aid at the last minute is unlikely to completely address concerns about inequality, and more investment is needed in the longer term development of students.

Obviously, there are additional barriers to college access than cost. Academic preparation also plays an important role. Increasingly, students finish high school with below grade-level competency (Greene & Foster, 2003), and this affects their ability to access and succeed at any institution of higher education, let alone a selective institution. There are a myriad of initiatives designed to try to improve academic preparation, and these will need to start producing results for the pipeline to approve. It is also worth considering the role of early information. If students do not believe college is possible, then researchers and practitioners fear that they will not bother

to complete the necessary steps to be prepared. In the long run, it will be interesting to see if the new aid policies change this by making the message of affordability clearer to future students.

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Table 1: Low-Income Students at Highly Selective Colleges and Universities, 2001-02

Institution	Percent Pell Recipients	Number of Pell Grant Recipients
Washington and Lee University	3.4%	58
Davidson College	6.4%	107
Colby College	6.5%	117
Harvard University	6.8%	655
Wake Forest University	7.0%	289
Princeton University	7.4%	350
College of William and Mary	8.0%	450
University of Notre Dame	8.0%	660
Washington University	8.0%	544
Middlebury College	8.1%	189
College of the Holy Cross	8.6%	241
University of Virginia	8.6%	1,183
Bates College	8.7%	153
Williams College	9.4%	188
Northwestern University	9.5%	870
Johns Hopkins University	9.6%	517
Brown University	9.7%	583
University of Pennsylvania	9.8%	1,157
Duke University	10.1%	629
Yale University	10.1%	536
Bowdoin College	10.2%	166
Colgate University	10.4%	294
Tufts University	10.4%	498
Boston College	10.6%	1,038
Georgetown University	10.8%	691
Dartmouth College	10.9%	447
Carnegie Mellon University	11.4%	603
Harvey Mudd College	11.5%	81
Stanford University	11.7%	855
Vassar College	11.9%	291
Pomona College	12.0%	186
MIT	12.4%	523
University of Chicago	12.4%	507
Georgia Institute of Technology	12.5%	1,375
Rice University	12.5%	341
Swarthmore College	13.0%	191
Haverford College	13.4%	152
Wesleyan University	13.8%	385
Claremont McKenna College	14.5%	151
Columbia University	14.9%	1,023

Source: Heller (2003) using data provided by Barry Goldstein of the Office of Federal Student Aid, U.S. Department of Education. The colleges are all in the "most competitive" category in the *Barron's* guides.

Table 2: Timeline of Financial Aid Policies – Date Initiatives Started

Start Date	Colleges and Universities (*listed alphabetically*)	
Fall 1998	Princeton University (*expanded Fall 2001*)	
Fall 2003	University of North Carolina, Chapel Hill	
Fall 2004	University of Virginia Harvard University (*expanded 2006*)	University of Maryland, College Park
Fall 2005	Arizona State University Rice University (*expanded Fall 2009*)	Univ. of Illinois at Urbana-Champaign University of Tennessee
Fall 2006	College of William & Mary Connecticut College Michigan State University North Carolina State University	Swarthmore College (*expanded Fall 2008*) University of Florida University of Michigan, Ann Arbor University of Pennsylvania
Fall 2007	Amherst College (*expanded Fall 2008*) Appalachian State University Columbia University (*expanded Fall 2008*) Davidson College Emory University	Georgia Institute of Technology Indiana University, Bloomington Tufts University University of Louisville
Fall 2008	Bowdoin College Brown University California Institute of Technology Claremont McKenna College Colby College Cornell University (*expanded Fall 2009*) Dartmouth College Duke University Haverford College Lafayette College Lehigh University Massachusetts Institute of Technology	Northwestern University Oberlin College Pomona College Stanford University University of Arizona University of Chicago Vassar College Washington University Wellesley College Wesleyan University Williams College Yale University
Fall 2009	Vanderbilt University	University of California System

Sources: The Project on Student Debt and FinAid.org.

Table 3: Select No-Loan Programs by Eligibility Criteria

No-Loan Policies for All Students		
Bowdoin College	Haverford College	Swarthmore College
Claremont McKenna College	Pomona College	Vanderbilt University
Dartmouth College	Princeton University	Williams College
Davidson College	Stanford University	Yale University
Harvard University		
No-Loan Policies for Some Income Levels		
Columbia University	Students with family income below $60,000	
University of North Carolina, Chapel Hill	Students from families with incomes up to 200 percent of the poverty line	
University of Pennsylvania	Students with family income below $90,000.	
University of Virginia	Students from families with incomes up to 200 percent of the poverty line	
Wellesley College	Students with family income below $60,000 and parental contributions below $7,000 (caps for higher income families)	
No-Loan Policies for State Residents		
Arizona State University	Arizona residents with family incomes up to $25,000 (loans and/or work are required for transportation and personal expenses)	
Univ. of MI, Ann Arbor	Michigan residents with zero EFC	
University of Florida	Florida residents with family income less than $40,000 and whose parents did not earn a bachelor's degree	
Michigan State University	Pell-eligible Michigan residents with family incomes below the poverty level (loan and/or work would be required in order to cover transportation and personal expenses)	
University of Arizona	Arizona residents with family income less than or equal to $42,400 who are Pell Grant recipients	
Univ. of IL, Urbana-Champaign	For Illinois residents with family incomes below the poverty level and who have zero EFC (10-12 hours per week of work-study required; loans and/or work are required for transportation and personal expenses)	
Univ. of MD, College Park	Maryland residents with zero EFC	

Sources: The Project on Student Debt and school-specific websites.
Notes: A "No-loan policy" means that after the family covers any EFC, the program covers the remaining student budget with work-study and grant aid.

Table 4: The Net Cost of Attendance by Income, 2009-2010

Institution	Total Cost of Attendance	Family Income $20,000		Family Income $40,000	
		Net Cost	% of Income	Net Cost	% of Income
College of William and Mary	$22,352	$0	0.0%	no info	---
Indiana University, Bloomington	$20,134	$0	0.0%	no info	---
University of Florida	$15,640	$0	0.0%	no info	---
University of Virginia	$21,490	$0	0.0%	$1,723	4.3%
University of NC, Chapel Hill	$17,424	$1,750	8.8%	$4,239	10.6%
Massachusetts Institute of Technology	$51,728	$1,900	9.5%	$3,559	8.9%
Connecticut College	$54,804	$2,100	10.5%	$4,056	10.1%
University of Richmond	$50,630	$2,140	10.7%	$2,140	5.4%
Lehigh University	$51,050	$2,250	11.3%	$4,608	11.5%
University of Maryland, College Park	$21,479	$2,400	12.0%	no info	---
Colby College	$51,920	$2,450	12.3%	$4,109	10.3%
Georgia Institute of Technology	$18,330	$2,500	12.5%	no info	---
Rice University	$47,160	$2,500	12.5%	$6,180	15.5%
University of Michigan, Ann Arbor	$23,721	$2,500	12.5%	no info	---
University of Pennsylvania	$53,250	$2,500	12.5%	$5,644	14.1%
Amherst College	$51,878	$2,550	12.8%	$4,209	10.5%
Williams College	$51,880	$2,800	14.0%	$4,459	11.1%
Vanderbilt University	$55,368	$3,200	16.0%	$5,130	12.8%
Swarthmore College	$52,185	$3,260	16.3%	$4,832	12.1%
Tufts University	$53,130	$3,300	16.5%	no info	---
Vassar College	$54,455	$3,300	16.5%	$4,839	12.1%
Claremont McKenna College	$53,035	$3,350	16.8%	$5,190	13.0%
Wellesley College	$52,098	$3,350	16.8%	$5,009	12.5%
Lafayette College	$52,289	$3,500	17.5%	$5,072	12.7%
Duke University	$53,390	$3,700	18.5%	$3,700	9.3%
Harvard University	$52,000	$3,700	18.5%	$3,700	9.3%
Bowdoin College	$52,880	$3,800	19.0%	$5,459	13.6%
Pomona College	$51,668	$3,800	19.0%	$5,640	14.1%
Washington University, St. Louis	$58,692	$3,800	19.0%	$5,504	13.8%
Yale University	$51,575	$3,800	19.0%	$3,800	9.5%
Haverford College	$53,827	$3,950	19.8%	$5,522	13.8%
North Carolina State University	$16,028	$4,000	20.0%	no info	---
California Institute of Technology	$47,400	$4,100	20.5%	$5,940	14.9%
Davidson College	$47,400	$4,100	20.5%	$5,759	14.4%
Cornell University	$52,414	$4,120	20.6%	$5,659	14.1%
University of Chicago	$54,390	$4,180	20.9%	$5,793	14.5%
Oberlin College	$54,896	$4,400	22.0%	$6,013	15.0%
Princeton University	$50,620	$4,400	22.0%	$5,956	14.9%
Emory University	$52,132	$4,500	22.5%	$6,204	15.5%
Northwestern University	$53,984	$4,500	22.5%	$6,113	15.3%

Stanford University	$50,992	$4,500	22.5%	$4,500	11.3%
Wesleyan University	$53,467	$4,500	22.5%	$6,056	15.1%
University of Louisville	$20,242	$4,696	23.5%	no info	---
Michigan State University	$21,548	$4,708	23.5%	no info	---
Brown University	$52,030	$4,850	24.3%	$4,850	12.1%
Middlebury College	$52,980	$4,900	24.5%	$6,513	16.3%
University of IL at Urbana-Champaign	$25,654	$5,010	25.1%	no info	---
Dartmouth College	$52,973	$5,150	25.8%	$6,990	17.5%
Columbia University	$54,294	$5,190	26.0%	$5,190	13.0%
Appalachian State University	$13,751	$5,300	26.5%	no info	---
University of Tennessee	$20,780	$5,310	26.6%	$7,392	18.5%
Arizona State University	$20,244	$5,420	27.1%	$7,322	18.3%
University of Arizona	$20,520	$6,450	32.3%	$8,352	20.9%
Grinnell College	$47,712	$6,700	33.5%	$8,512	21.3%
University of CA (system-wide)	$26,985	$9,400	47.0%	$10,943	27.4%

Source: The Project on Student Debt.

Notes: The net cost reflects how much students and parents must contribute from sources including income, savings, loans, and work. To calculate the amounts, the authors used the "Streamlined Expected Family Contribution (EFC) Calculator" available at FinAid.org to calculate expected parent contribution and student contribution if applicable. The figures use the standard Institutional Methodology (IM) formula when calculating financial need. Families were assumed to have two parents earning equal salaries, with the older parent being 45, and the incoming freshman having earned $1,500 from part-time or summer work as a high school senior. A family with $20,000 of income is assumed to have $11,300 in assets and $2,600 in home equity. A family with $40,000 of income is assumed to have $31,500 in assets and $65,000 in home equity.