ISSUE BRIEF

Economic Diversity Among Selective Colleges: Measuring the Enrollment Impact of "No-Loan" Programs

DR. NICHOLAS HILLMAN, ASSISTANT PROFESSOR, UNIVERSITY OF UTAH

August 2012

IHEP

INSTITUTE FOR HIGHER EDUCATION POLICY
1320 19th Street, NW, Suite 400
Washington, DC 20036

202 861 8223 TELEPHONE
202 861 9307 FACSIMILE
www.ihep.org WEB

Table of Contents

Introduction
How Economically Diverse are Highly Selective Campuses?
Exploring No-Loan Policies
What Types of Colleges Offer No-Loan Programs?
Research Design and Analysis
Are No-Loan Programs Affecting Campus Economic Diversity?
Conclusion
References
Appendix

Acknowledgments

The author would like to thank the members of the Bill & Melinda Gates Research Advisory Committee for their helpful feedback, especially Ken Redd at the National Association of College and University Business Officers and Brian Sponsler at NASPA. In addition, Alisa F. Cunningham, Wendell Hall, Christen Hairston, and Tia T. Gordon provided useful comments.

The Institute for Higher Education Policy is grateful to the Bill & Melinda Gates Foundation's support in publishing this brief.

Introduction

In today's knowledge-based economy, a college education is becoming increasingly important for economic and social prosperity. This prosperity comes in the form of greater job security, higher lifetime earnings, and healthier lifestyles for people who have the opportunity to enroll in higher education. When more people invest in higher education, it results in broader societal benefits such as greater economic productivity, lower crime rates, and more engaged citizenship, which ultimately improves the nation's overall quality of life.

In pursuit of these broad benefits, policymakers are calling on colleges and universities to expand educational opportunities so that more people will invest in higher education. Unfortunately, this is not an easy goal to achieve because the rising price of attending college—among other factors—is driving potential students away from higher education. This is particularly true for the nation's lowest-income students.

Students from low-income families are underrepresented in higher education, despite the fact that many of them are well qualified to enroll. When low-income students do enroll in college, they tend to be overrepresented in public community colleges and for-profit institutions, or if they attend four-year institutions, tend to attend regional state institutions.[1] These institutions often have lower graduation rates, fewer academic resources for students, and lower faculty-to-student ratios. However, these institutions also charge lower tuition. As a result, they are desirable for many price-sensitive students, regardless of the students' academic achievement. Conversely, highly selective institutions have more academic resources for facilitating student success, and their students have greater chances of earning degrees. Highly selective institutions also charge significantly higher tuition. The sticker price of attending these colleges is often higher than the annual earnings of a low-income family, causing "sticker shock" for many interested students. As a result, few high-achieving students from low-income families enroll in highly selective institutions, despite the fact that they may be academically qualified to do so.[2] In turn, highly selective institutions tend to enroll small proportions of low-income students.[3]

This "mismatch," where high-achieving low-income students are underrepresented in our nation's most selective institutions, is a growing concern for college leaders and higher education policymakers. Many of our nation's high-achieving low-income students may not seek to attend these colleges because they perceive price to be too significant a barrier. Given these challenges, what can highly selective colleges do to increase these opportunities for low-income students? And why does it matter that they do?

Addressing the second question first, when money becomes a barrier to access, it undermines our nation's ability to ensure economic and social prosperity for all. When tuition levels rise without equivalent increases in financial aid, the perception for low-income students is an increased financial burden. Many of these

[1] institute for Higher Education Policy 2011; U.S. Department of Education 2008.
[2] Bowen, Chingos, and McPherson 2009.
[3] U.S. Department of Education 2007.

students are qualified to be admitted to the most selective colleges and universities, but their financial circumstances may prevent them from considering these educational opportunities. An education system that allows this pattern to persist and that sorts students according to their *ability to pay*, rather than according to their academic performance, will only perpetuate economic inequality. Such a system is not only inequitable but inefficient, because excluding talented students from the finest academic opportunities is a missed opportunity to invest in our nation's collective talents. Policymakers and campus leaders should be concerned about the underrepresentation of low-income students within all sectors of higher education, but particularly among highly selective institutions, which often provide greater opportunities for students who attend.

Speaking to the first question, some colleges and universities have often tried to increase the numbers of low-income students on their campuses through scholarship programs, need-blind admissions policies, or other efforts. More recently, some have adopted "no-loan" policies in order to expand access and choice for low-income students.[4] The first, Princeton University, has eliminated loans from students' financial aid packages by replacing them with nonrepayable scholarships and grants from the university's own budget. Through this new aid policy, the university now pledges to meet all admitted students' financial need without loans, thus reducing the price that students pay to attend this highly selective institution. In recent years, many other institutions have begun to use "no-loan" financial aid policies to increase the numbers of low-income students on their campuses. Between 1998 and 2011, 69 highly selective institutions have adopted "no-loan" financial aid policies to reduce the price barrier for lower-income students. These policies eliminate or significantly reduce student loans from low-income students' financial aid packages, which makes college free (or significantly less expensive) for students who qualify for aid. **TABLE 1** lists the postsecondary institutions that have adopted a no-loan policy, and **FIGURE 1** illustrates the diffusion of this idea across the geographic and postsecondary landscape. Despite the spread of no-loan policies, little is known about the effects of this strategy on improving economic diversity at the participating institutions. To address this knowledge gap, this brief evaluates the impacts of no-loan policies on low-income student enrollment and assesses the length of time required after policy implementation for any observable effect to be realized.

For several reasons, knowledge about the effects of no-loan policies is important. First, the finite nature of federal, state, and institutional financial aid dollars makes it critical that attempts to specifically address access for low-income students produce tangible results. Second, because successful efforts to increase national educational attainment levels necessitate a significant increase in the number of low-income students attending college, designing effective financial aid policies to support these efforts is a policy imperative. Finally, given the recognition that low-income but academically prepared students may avoid highly selective institutions because of perceptions of high college prices, it is useful to know whether policies aimed at reducing the price of attendance for low-income students are effective. If the policies are effective, they may offer a model for other institutions to follow in order to expand opportunities for low-income students. Using institutional aid programs in this way could be a useful strategy for combating educational inequality and increasing our nation's capacity to invest in the talents of low-income youths.

[4] The definition of a "low-income" student may differ by institution, using family income status, federal student aid calculations of financial need, or other factors.

TABLE 1

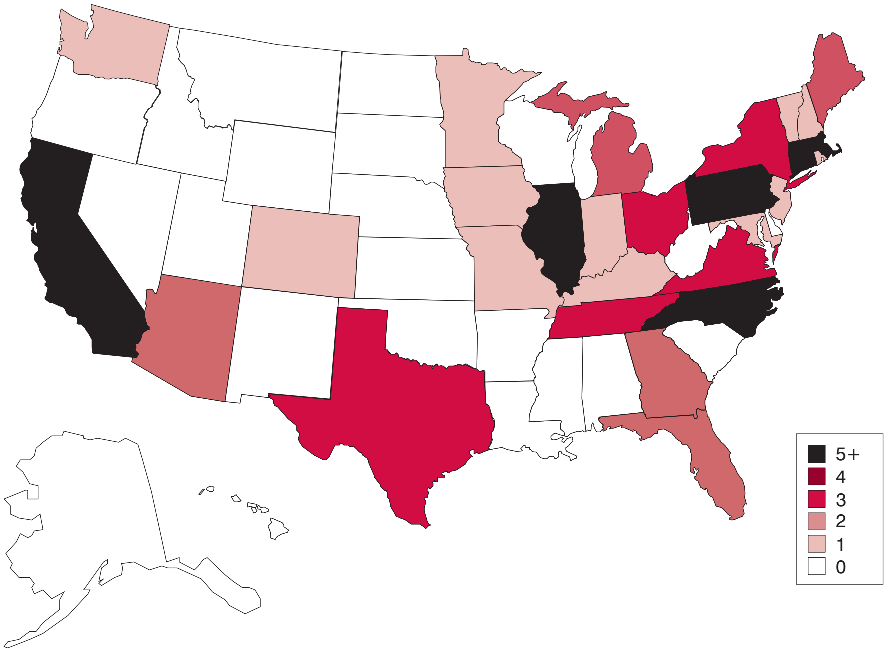
No-loan institutions by state

STATE	PUBLIC	PRIVATE
Arizona	Arizona State University and University of Arizona	
California		California Institute of Technology, Claremont McKenna College, Pomona College, and Stanford University
Connecticut		Fairfield University, Sacred Heart University, Wesleyan University, and Yale University
Florida*	University of Florida	
Georgia*	Georgia Institute of Technology	Emory University
Iowa		Grinnell College
Illinois	Northern Illinois University and University of Illinois (Urbana-Champaign)	Northwestern University and University of Chicago
Indiana	Indiana University (Bloomington)	
Kentucky*		
Massachusetts*		Amherst College, Boston University, Harvard University, Massachusetts Institute of Technology, Tufts University, Wellesley College, and Williams College
Maryland	University of Maryland (College Park)	
Maine		Bowdoin College
Michigan*	University of Michigan and Michigan State University	
Minnesota		Carleton College
North Carolina	Appalachian State University, North Carolina State University (Raleigh), and University of North Carolina (Chapel Hill)	Davidson College and Duke University
New Hampshire		Dartmouth College
New Jersey		Princeton University
New York		Columbia University, Cornell University, and Vassar College
Ohio	Miami University	Oberlin College
Pennsylvania		Haverford College, Lafayette College, Lehigh University, Swarthmore College, and University of Pennsylvania
Rhode Island		Brown University
Tennessee*	University of Tennessee (Knoxville)	Bryan College and Vanderbilt University
Texas	Lamar University, Texas A&M University, and Texas State University (San Marcos)	Rice University
Virginia	College of William and Mary and University of Virginia	Washington and Lee University
Vermont	University of Vermont	
Washington	University of Washington (Seattle)	

NOTE: STATES WITH BROAD-BASED STATE MERIT AID PROGRAMS ARE DENOTED WITH AN ASTERISK.
SOURCE: ADAPTED FROM KANTROWITZ 2011, LIPS 2011, PROJECT ON STUDENT DEBT 2011, AND ZHANG AND NESS 2010

FIGURE 1

Distribution of no-loan institutions by state



SOURCE: ADAPTED FROM KANTROWITZ 2011, LIPS 2011, AND PROJECT ON STUDENT DEBT 2011

This brief begins with a review of relevant research on the promotion of economic diversity in U.S. colleges and universities, the origins of no-loans policies, and the impacts of this policy choice. The next section describes the causal relationship between no-loan policies and low-income student enrollment, demonstrating the success and limits of this strategy. The brief concludes with implications of results for both policymakers and institutional leaders as they continue efforts to support college-going among low-income first-time, full-time students.

How Economically Diverse are Highly Selective Campuses?

The highly selective sector[5] of higher education tends to enroll a small share of students from low-income families. On average, one in every 10 undergraduates on these campuses receives a Pell Grant. Contrasted with less selective public colleges, where 30 to 40 percent of undergraduates receive Pell Grants, this statistic illustrates a stark contrast in terms of the lack of economic diversity at many of our nation's most selective and wealthy institutions. Some evidence suggests that these campuses are becoming more economically diverse, yet competition for the small number of spaces available at these institutions is becoming ever more intense.[6]

One reason for this pattern is that lower-income students often have fewer academic and cultural opportunities in high school, which in turn limits their chances of qualifying for admission at these institutions. Even when high-achieving low-income students do qualify for admission, they may be dissuaded from applying by perceived cost barriers.[7] William Bowen and Derek Bok, former presidents of Princeton and Harvard, respectively, argue that low-income students simply are not well enough prepared for highly selective sectors of higher education, noting that "the problem is not that poor but qualified candidates go undiscovered, but that there are simply too few of these candidates in the first place."[8] Some researchers estimate[9] that only 8 to 9 percent of students attending highly selective private and public flagship institutions are from families earning less than $30,000 per year. Census data showing that 24 percent of all U.S. families earn less than this figure support the Bowen and Bok perspective that there is simply too small of pool of "qualified" low-income students from which highly selective institutions can recruit.

However, other scholars argue that the problem is not in the supply of low-income students; rather it is their demand for applying to highly selective institutions that is problematic. Research[10] on this alternative point of view shows that some of the nation's most selective, private four-year colleges can indeed enroll more students from low-income families. Finding that only 10 percent of students enrolled in highly selective private institutions come from the bottom 40 percent of the national income distribution, the authors conclude that these colleges could enroll more students from low-income families without reducing the average SAT or ACT scores of incoming cohorts. They estimate that enrollment could be increased from 10 to 13 percent in a relatively short time. Other scholars[11] similarly conclude that a small share (3 percent) of the nation's total low-income student pool enrolls in "top-tier" institutions, though a higher proportion of them perform well on standardized tests and would likely be admitted to highly selective institutions if they applied. This mismatch between academic achievement and college destinations, as well as students' perceptions about the affordability of highly selective institutions, is of growing importance to higher education access and equity debates. Taken together, prior research suggests that highly selective institutions *could* expand access for low-income students through their admissions and financial aid policies, which in turn could increase low-income students' demand for applying to highly selective institutions.

---

5 In this study, "highly selective" institutions are those that admit less than half of their total applicants. Many of these institutions are also very wealthy (measured by their endowment size) and have high admission requirements (measured by ACT/SAT scores).

6 Bastedo and Jaquette 2011.

7 St. John, Hu, and Fisher 2010.

8 Bowen and Bok 2000.

9 Pallais and Turner 2006.

10 Hill and Winston 2006; 2010.

11 Carnevale and Rose 2004.

Exploring No-Loan Policies

As mentioned, Princeton University established the nation's first no-loan policy in 1998, guaranteeing to replace student loans with non-repayable grants and scholarships for all incoming undergraduates whose family income was less than the national median. Campus leaders expected the commitment to require approximately $1.7 million annually for the first few years.[12] In 2001, the university expanded eligibility to include all students who were eligible for financial aid, regardless of whether they are from low-income backgrounds. As a result of this policy change, the average graduate's student loan debt declined from more than $15,000 in 1999 to less than $4,000 in 2006.[13]

Princeton's 2001 eligibility change brought significant national attention. A *New York Times* article[14] accurately predicted the events of the next several years: "Princeton's decision to reduce student indebtedness is likely to put pressure on other highly selective colleges and universities competing not just in academic programs but also in real-life economics for the best students." Harvard, Yale, Stanford, and several other highly selective private institutions adopted similar aid policies soon after Princeton's lead.[15] Of the 69 programs that were in operation by 2011, 18 were in six New England states, and 44 were implemented at private liberal arts colleges.

These programs are not limited to the Ivy League—several public four-year colleges and universities have begun offering similar aid packages. For example, the University of North Carolina started the Carolina Covenant in 2003, and by 2011, 24 other public four-year institutions had adopted similar programs. Public colleges tend to be larger than private colleges, and they have historically enrolled a more diverse student body. For high-achieving low-income students, public "flagship" colleges like the University of Michigan or the University of Virginia are viable alternatives to attending highly selective private institutions, since they offer lower tuition for in-state students. To compete for these high-achieving low-income students, public flagship campuses are following the Princeton model of aiding students.

As **FIGURE 2** shows, a large number of colleges initiated no-loan policies in 2008; more than half of all no-loan programs began in that year. During this growth period, colleges began designing their own variations of the Princeton and North Carolina models, and as a result each of the 69 programs is designed differently.[16]

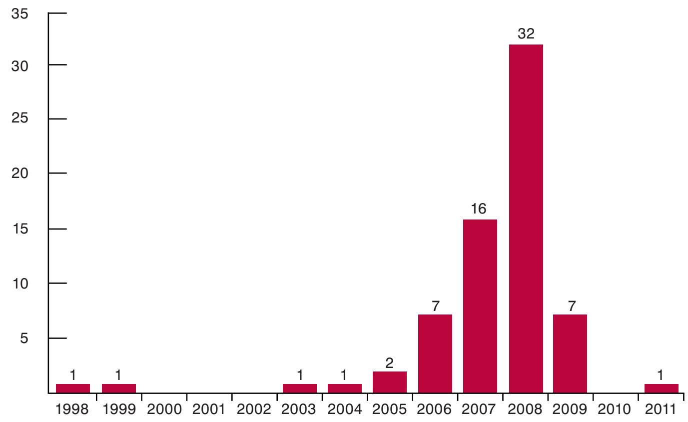
Senate Investigation into College Endowments

In addition to the growing pressure to implement no-loan programs as a way of competing for students, the rapid growth of these programs was likely spurred on by a far more pragmatic reason. In 2008, the U.S. Senate Committee on Finance, led by Senators Charles Grassley and Max Baucus, took an interest in the tax-exempt status of higher education endowments. Unlike private foundations in other philanthropic

12 Linsenmeier, Rosen, and Rouse 2006.
13 Rothstein and Rouse 2007.
14 Arenson 2001.
15 Project on Student Debt 2011.
16 Some institutions may have changed their policies in response to the economic downturn.

FIGURE 2

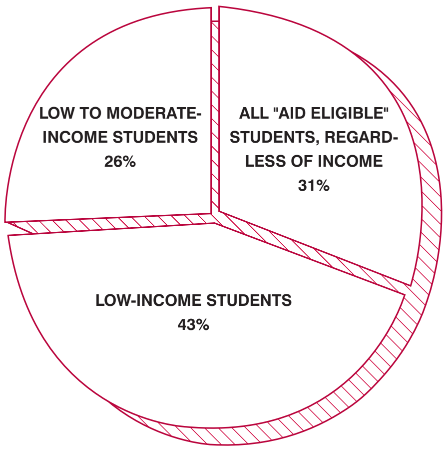
Year in which campuses established first no-loan policy



SOURCE: ADAPTED FROM KANTROWITZ 2011, LIPS 2011, AND PROJECT ON STUDENT DEBT 2011

FIGURE 3

Eligibility requirements at no-loan institutions



SOURCE: ADAPTED FROM KANTROWITZ 2011

sectors, college and university endowments are not required to spend 5 percent of their assets annually on charity, leading the senators to question whether colleges were doing enough to help reduce the price of tuition for students. In a letter to the nation's 136 wealthiest college endowments (those with assets greater than $500 million), Senator Grassley justified the probe with the following statement:

> Tuition has gone up, college presidents' salaries have gone up, and endowments continue to go up and up. We need to start seeing tuition relief for families go up just as fast. It's fair to ask whether a college kid should have to wash dishes in the dining hall to pay his tuition when his college has a billion dollars in the bank. We're giving well-funded colleges a chance to describe what they're doing to help students. More information will help Congress make informed decisions about a potential payout requirement and allow universities to show what they can accomplish on their own initiative.

During this investigation, the committee proposed linking the tax-exempt status of university endowments with their annual payout rates. Had the policy taken effect, institutions that did not pay out at least 5 percent of their assets each year could have lost their tax-exempt status. In preparation for this pending proposal, many institutions began identifying strategies to spend down their assets to keep their tax-exempt status. Accordingly, the rapid growth in no-loan policies during this period was likely due in part to these Senate investigations.

Eligibility Requirements

Many institutions aspire to emulate the Princeton model when designing their own no-loan pledges. However, most institutions (public or private) do not have the financial resources to be as generous as Princeton and, therefore, modify their policies. **FIGURE 3** shows that two in every three no-loan institutions (69 percent) restrict their no-loan aid to students from low (43 percent) or moderate (26 percent) income levels.[17] The most targeted programs link their eligibility requirements to the federal Pell Grant program or to federal poverty measures, while the less targeted programs do not link institutional eligibility requirements to any federal guidelines. The Princeton model is an example of the latter, as it is not targeted specifically for low-income students; rather, any "aid-eligible" students (i.e., those who have unmet financial need) are eligible to receive aid via the no-loan program. One in three no-loan institutions follows this model.

The colleges that follow the Princeton model are private and in the upper tier of university endowments, such as Harvard, Stanford, Amherst, and Yale. They are exceptions to the rule, as most institutions restrict aid eligibility to lower-income students.

[17] Note that definitions of low- or moderate-income may differ by institution.

This is particularly the case within the public sector, illustrated in the following brief examples. At the University of North Carolina and the University of Virginia, students whose family income level is below 200 percent of the poverty threshold (approximately $46,000 for a family of four) qualify for aid. Other public institutions such as the University of Arizona, University of Florida, and the College of William and Mary restrict eligibility to families earning less than $40,000, while some public colleges (Georgia Technical University and Indiana University—Bloomington) have even lower income thresholds. Private colleges tend to have higher income eligibility thresholds than public colleges. At Washington University, University of Chicago, Vassar College, and the California Institute of Technology, for example, students from families earning less than $60,000 are eligible for aid.

There is no "standard" way to design no-loan programs. Each college adopts its own version of the Princeton model, often incorporating income thresholds to keep aid targeted to lower-income (and in many cases middle-income students). Although these programs all focused on removing price barriers for lower-income students, how the eligibility requirements are set can influence the balance of low- or moderate-income students. Less targeted campuses may not see significant gains in low-income enrollments, while those that are more targeted on lower-income students may see greater increases. The following section highlights four examples of public and private colleges that recently adopted no-loan programs to see whether and to what extent their low-income enrollment levels changed.

Impact of No-Loan Policies

Princeton, Harvard, the University of Virginia (UVA), and the University of North Carolina (UNC) offer mixed evidence concerning the impact of no-loan policies on low-income enrollment levels. In each case, low-income enrollment levels increased in the years following the introduction of the new aid policy; however, the size of the changes varies.[18] At Princeton, fewer than 8 percent of undergraduates came from low-income families prior to the introduction of the no-loan policy; after the policy, the share of low-income students rose to 9.5 percent.[19]

At Harvard, a similar pattern emerged, with the share of incoming students from low-income families increasing from 14.9 percent in 2004 to 16.5 percent in 2005.[20] Turning to public institutions, the share of students from low-income families increased from 6 percent to 9 percent between 2005 and 2009 at UNC,[21] and a more modest increase occurred in the first years at UVA.[22]

Although these descriptive statistics suggest that the new financial aid policies may be increasing low-income enrollment, only the Harvard and Princeton studies[23] employed analytic techniques designed to account for other measurable changes that could explain part of the upward trend. In both cases, the authors find the new aid programs to have positive and statistically significant impacts on low-income student enrollment decisions. However, both sets of researchers observe that the new programs may make only modest changes to the institutions' economic diversity, rather than fundamentally changing the profile of the institutions. Their evidence suggests that no-loan policies may be more effective at increasing the number of low-income students applying, and not necessarily the

[18] Note that the definition and length of time may differ among the studies.
[19] Linsenmeier et al. 2006.
[20] Avery et al. 2006.
[21] Fiske 2010.
[22] Pallais and Turner 2006 and Tebbs; and Turner 2006.
[23] Avery et al. 2006; and Linsenmeier et al. 2006.

number of admissions or enrollments. The authors do find an enrollment effect, but they note that their institutions became even *more* selective of low-income students.

The only multi-institutional analysis of no-loan policies to date suggests similar patterns. Waddell and Singell[24] examined low-income student enrollments[25] before and after introduction of no-loan policies among public institutions, finding evidence that the policies positively affect low-income student enrollment decisions. Similar to prior findings,[26] they also notice that the profile of low-income students changed after the policy was introduced. The new profile of low-income students at these institutions shows that they tend to be better academically prepared and potentially better matched to the institution's academic profile. Although a degree of "skimming" may be occurring as a result of these programs, it appears that the new aid programs are also increasing the overall representation of Pell Grant students.

Summary

Thus, existing research suggests that high-achieving low-income students are a scarce commodity within highly selective colleges and universities. Due to this scarcity, and given what we know about the way that students choose colleges, some highly selective public and private institutions have begun offering no-loan programs to promote access for low-income students.[27] Some studies have suggested that these new financial aid programs generate greater interest in colleges, thus increasing the pool of qualified low-income students applying for highly selective institutions; with excess demand, the institutions can expand access for low-income students. However, if colleges are using these aid programs to "skim" the highest-achieving low-income students—at the risk of admitting fewer students—then we may see no real gains in terms of campus economic diversity. This would be problematic because it could further stratify opportunities for low-income students, and these aid efforts may be perceived as a marketing strategy that is not truly aimed at improving educational opportunities for high-achieving students.

No-loan programs could lead to better matching and higher hopes of accessing selective institutions for many high-achieving low-income students. These programs have the potential to reverse some of the long-standing trends in educational inequalities discussed earlier in this brief. However, it is also possible that these programs are simply helping colleges become even more selective in their admissions. If this is the case, then no-loan programs are simply a marketing tool that serves institutional best interests rather than improving choices and opportunities for low-income students. The jury is still out, as it is unclear whether these programs as a whole, are increasing low-income students on highly selective campuses. Considering the recent growth in these aid policies, it is important that we continue studying their impact on enrollment changes. The intent of this policy brief is to contribute to the collective knowledge about the efficacy of these programs, and to help inform campus leaders about the challenges and opportunities of adopting similar aid policies.

---

[24] Waddell and Singell 2011.

[25] Throughout this brief, "low-income" students are those who receive federal Pell Grants. Pell Grants are awarded to the nation's lowest-income college students, whose family income is often less than $40,000 per year.

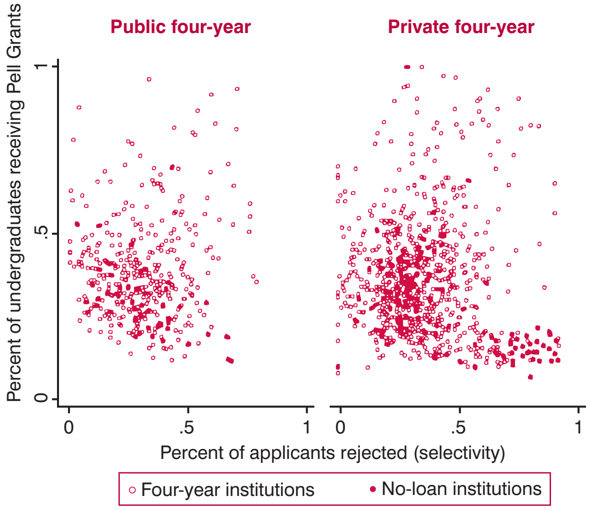
[26] Avery et al. 2006; and Linsemeier et al. 2006.

[27] Lips 2011.

What Types of Colleges Offer No-Loan Programs?

FIGURE 4

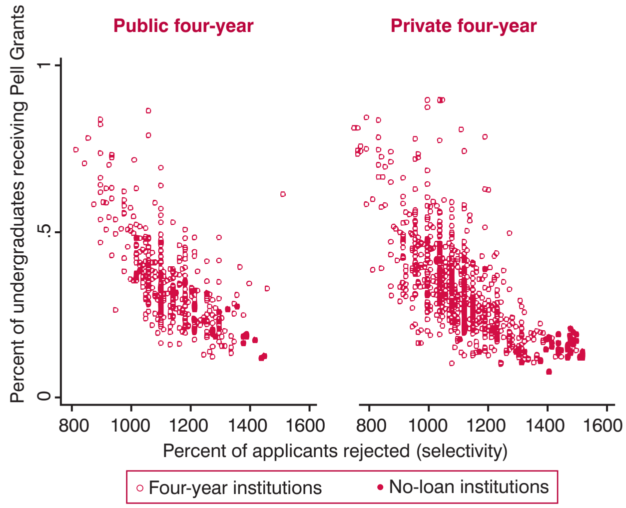
Pell Grant recipient enrollment and selectivity of no-loan institutions (2009)



SOURCE: U.S. DEPARTMENT OF EDUCATION'S INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM AND OFFICE OF POSTSECONDARY EDUCATION'S PELL PROGRAM DATA FILES

FIGURE 5

Pell Grant recipient enrollment and median SAT verbal and math scores of no-loan institutions (2009)



SOURCE: U.S. DEPARTMENT OF EDUCATION'S INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM AND OFFICE OF POSTSECONDARY EDUCATION'S PELL PROGRAM DATA FILES

As we have seen, no-loan colleges serve a unique niche within the higher education marketplace. Many of the private institutions are located in New England or are members of the Consortium on Financing Higher Education (COFHE). Many of the public institutions are in the South or Midwest and are state flagship institutions. Regardless of the state or sector in which the institution operates, most no-loan colleges are highly-selective institutions that serve small shares of Pell Grant recipients who come predominantly from low-income backgrounds **(FIGURE 4)**.

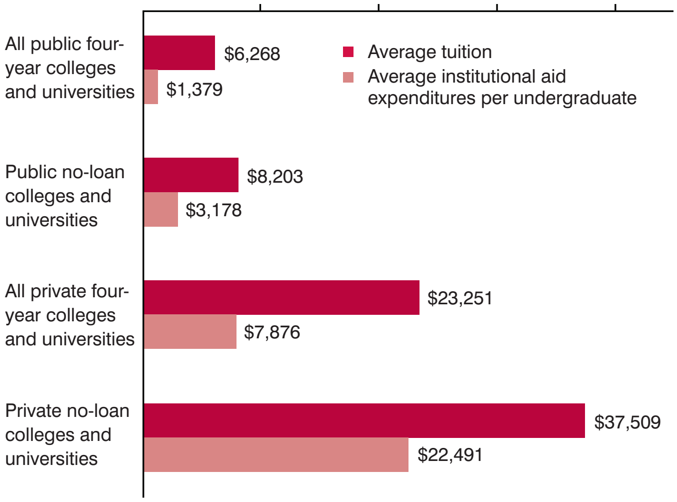
No-loan institutions also serve a unique set of students in terms of their precollege performance on standardized tests. **FIGURE 5** shows that their students tend to have higher SAT scores than those of most other four-year institutions, particularly the case within the private sector. The downward-sloping relationship suggests that greater selectivity is associated with less economic diversity.

In addition to these enrollment and selectivity characteristics, no-loan colleges share common attributes in terms of tuition and financial aid expenditures. These colleges tend to charge higher tuition than most four-year institutions, as **FIGURE 6** shows. Though they also offer more aid, some students may not be aware of the generous amount of tuition discounting that occurs in these institutions. Lessons from the research on "high-tuition, high-aid" pricing models suggests that information and targeting of resources are key to implementing a successful aid program.

To implement this pricing model, many institutions rely on their endowments. No-loan colleges tend to have large endowments; in 2009, the collective assets of no-loan institutions were valued at $21 billion at public institutions and $138 billion at private institutions, respectively **(FIGURE 7)**. Although

FIGURE 6

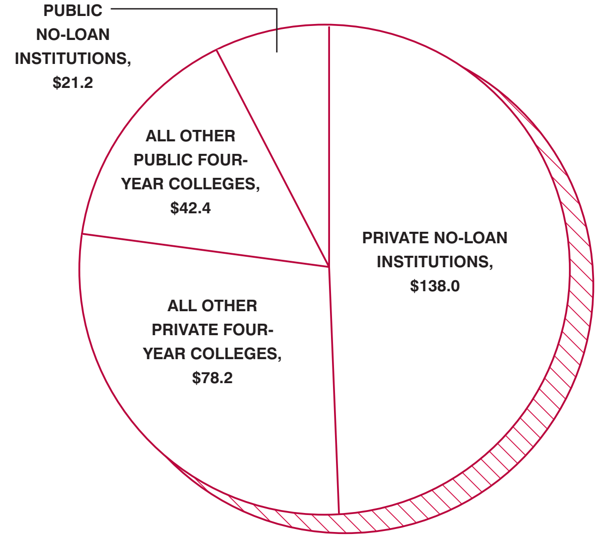
Average tuition and institutional aid at public and private four-year colleges (2009)



SOURCE: U.S. DEPARTMENT OF EDUCATION'S INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM

FIGURE 7

Total endowment asset value (in billions) by institutional type (2009)



SOURCE: U.S. DEPARTMENT OF EDUCATION'S INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM

no-loan institutions account for a small share of the nation's colleges, they account for more than half of total endowed assets. This concentration of wealth in the hands of very few institutions illustrates the high degree of resource stratification within higher education, and it calls into question whether these institutions are doing enough to be more inclusive of students from low-income families.

In aggregate, no-loan institutions serve only a small portion of the nation's lowest-income students. At these campuses, particularly in the private sector, it is not uncommon for only one in 10 undergraduates to receive Pell Grant awards. This trend is problematic because many of the nation's highest-achieving but low-income students perceive these colleges to be out of reach simply because of price. No-loan programs have the potential to fight this inequality of opportunities by expanding access and choice for our nation's highest-achieving lowest-income students. However, these institutions tend to serve a very small and highly selective niche within the educational sector, summarized as follows:

- Low proportion of low-income students
- Large endowments
- High SAT scores
- "High-tuition, high-aid" pricing models
- Highly selective admissions

It is important to acknowledge that the relatively low share of low-income students at these institutions often allows those generous aid policies, and may not be feasible for other institutions. Nonetheless, further examination of the impact of no-loan policies can be instructive.

Research Design and Analysis

Since research on college student enrollment has consistently found that the introduction of grant programs and the reduction of price barriers has a positive impact on students' enrollment decisions,[28] it seems likely that the introduction of no-loan programs will help colleges generate greater enrollment of Pell Grant recipients. As more Pell Grant recipients enroll in these colleges, they will see increased economic diversity. Not only will these colleges improve their Pell Grant enrollments, but they will do so at a greater rate than other highly selective institutions. However, no-loan institutions are likely making no (or even negative) progress if they are simply using the aid to enroll higher-profile (rather than a higher percentage of) Pell Grant students.

To evaluate the impact of this aid strategy, this analysis contrasts Pell Grant enrollment trends at no-loan colleges with those of similar institutions. These comparison institutions must be similar to no-loan institutions in terms of the student markets in which they operate; however, they must differ by not offering "no-loan pledges" to their students. To be a comparison institution, a college must meet one of the following two criteria:

- Admit less than 50 percent of its applicants and have endowment assets of at least $100,000 per undergraduate student
- Be a public "flagship" campus[29]

TABLE 2 illustrates the similarities and differences between no-loan institutions and their comparison institutions. For example, the groups are very similar in terms of size and admission standards; both groups enroll approximately 11,000 total undergraduates and the median SAT score of the incoming class is between 1,300 and 1,400. They are also similar with regard to the percentage of students who are ethnic minorities and in terms of average tuition levels, which are slightly higher among no-loan institutions. Similar patterns can be seen when differentiating between public and private institutions, as shown in **TABLE 2**.

However, no-loan institutions are different from their comparison group in a few important ways. No-loan institutions enroll smaller shares of low-income students (measured by percentage of undergraduates receiving Pell Grants), and they tend to be slightly more selective than their comparison group peers. Endowment size is the most striking difference between these two groups, as the average endowment for private no-loan institutions is three times greater than their comparison group peers. This is largely because a few no-loan institutions (Princeton, Harvard, and Yale) are extremely wealthy outliers that skew this number upward. This difference is not as large among public institutions, where the average endowment of no-loan colleges is only one-half times greater than that of their comparison group. With larger endowments, private no-loan colleges can spend more money on institutional grant aid per student, while public no-loan institutions are on par with their comparison group in terms of aid expenditures. Though the comparison institutions are different in a few key ways, they are still highly selective, wealthy institutions that could (but currently do not) offer no-loan programs.

A difference-in-difference regression model (see **APPENDIX A**) can be used to compare low-income enrollment patterns of no-loan and comparison institutions. Using institution-level data for the years 2002–03 through 2009–10,[30] this technique will measure the impact of no-loan programs on low-income enrollment levels (measured by Pell Grant enrollment), while accounting for differences in campuses' endowment and tuition levels, minority enrollments, SAT scores, and enrollment size. The difference-in-difference technique compares how Pell Grant enrollment levels at no-loan institutions differed from comparison group institutions before and after introducing the no-loan program. A positive difference-in-difference will suggest that no-loan colleges are making greater gains in economic diversity than their comparison group.

[28] McPherson and Schapiro 1991; Heller 1997; St. John 2000; DesJardins, Ahlburg, and McCall 2002, 2006; and Hemelt and Marcotte 2008.

[29] Gerald and Haycock 2006.

[30] Some key variables (e.g., SAT scores, endowment records, and aid expenditures) were unavailable for all institutions prior to 2002–03. Similarly, 2009–10 is the most recent year for which Pell Grant enrollment data are available through the U.S. Department of Education. Due to these data constraints, 2002 through 2009 are examined.

TABLE 2

Characteristics of no-loan institutions and their comparison groups

Public and Private Sectors, Combined	No-Loan Colleges	Comparison Colleges
Percent of undergraduates receiving Pell Grants	15.6%	20.3%
Endowment assets per undergraduate	$489,557	$142,578
Published tuition and fees	$23,839	$20,365
Institutional grant aid per undergraduate	$12,366	$8,919
Percent of undergraduates who are non-White	35.3%	30.7%
Median combined (verbal and math) SAT score	1,397	1,319
Percent of applicants rejected (selectivity)	57.6%	45.9%
Total undergraduate enrollment	11,139	11,457
Number of institutions in analysis	52	63
Private Four-Year Sector	**No-Loan Colleges**	**Comparison Colleges**
Percent of undergraduates receiving Pell Grants	12.4%	17.8%
Endowment assets per undergraduate	$767,109	$244,072
Published tuition and fees	$34,161	$32,235
Institutional grant aid per undergraduate	$18,226	$14,500
Percent of undergraduates who are non-White	39.7%	35.5%
Median combined (verbal and math) SAT score	1,474	1,387
Percent of applicants rejected (selectivity)	71.5%	61.3%
Total undergraduate enrollment	4,571	4,469
Number of institutions in analysis	35	34
Public Four-Year Sector	**No-Loan Colleges**	**Comparison Colleges**
Percent of undergraduates receiving Pell Grants	20.8%	23.3%
Endowment assets per undergraduate	$38,534	$24,023
Published tuition and fees	$7,066	$6,450
Institutional grant aid per undergraduate	$2,793	$2,400
Percent of undergraduates who are non-White	28.3%	25.1%
Median combined (verbal and math) SAT score	1,271	1,238
Percent of applicants rejected (selectivity)	35.0%	27.8%
Total undergraduate enrollment	21,812	19,620
Number of institutions in analysis	17	29

NOTE: COMPARISON INSTITUTIONS MUST EITHER ADMIT LESS THEN 50 PERCENT OF APPLICANTS AND HAVE ENDOWMENT ASSETS OF AT LEAST $100,000 PER STUDENT, OR BE A PUBLIC "FLAGSHIP" CAMPUS.

SOURCE: U.S. DEPARTMENT OF EDUCATION'S INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM AND OFFICE OF POSTSECONDARY EDUCATION'S PELL GRANT PROGRAM DATA FILES

Are No-Loan Programs Affecting Campus Economic Diversity?

The first step is to examine how Pell enrollments have changed before and after the introduction of no-loan pledges across all institutions (public and private combined). **TABLE 3** shows that approximately 14.7 percent of undergraduates received Pell Grants at no-loan institutions before the adoption of no-loan policies; after adoption, Pell Grant recipients accounted for 15.7 percent of total undergraduate enrollments. Comparison institutions enrolled a greater share of students to begin with; this value dropped slightly from 20.4 percent to 20.3 percent over time. When considering the different starting and ending points of these institutions, we can see that the share of Pell Grant students at no-loan institutions increased by 1.0 percentage point while the share declined by 0.1 percentage point at other highly selective institutions. This results in a positive difference-in-differences of 1.1 percent, giving preliminary evidence that the introduction of no-loan programs has increased the economic diversity of campuses at greater rates than similar institutions without the aid program.

But do these patterns hold when disaggregating institutions according to public and private institutions, even after accounting for other factors such as changes in tuition levels, the academic profile of incoming students, enrollment changes, or changes in finances? The next section answers these questions by disaggregating the results between public and private institutions.

Public No-Loan Colleges

Similar to the national trend, public no-loan colleges are less economically diverse than other highly selective institutions. In the years before they established the new aid programs, 18.9 percent of undergraduates received Pell Grants at no-loan institutions. This value is 4.5 percentage points lower than comparison institutions (see **TABLE 4**). However, in the years after implementation, these institutions increased their share of Pell Grant enrollments by 1.3 percentage points. Other public flagship and highly selective institutions did not expand their share of Pell Grant recipeints during this time; rather, they maintained the status quo.

While these trends illustrate the impact of introducing no-loan policies, they may have resulted from other factors such as differences in tuition levels, the academic profile of incoming students, enrollment profiles, or even institutional finances. Even after accounting for these factors in a regression model (see **APPENDIX A**), the introduction of no-loan policies increases economic diversity at public four-year colleges and universities. Furthermore, the results indicate that public colleges begin to see even greater Pell Grant enrollment gains after the fourth and fifth years of the programs. Taken together, no-loan programs at public institutions have had positive impacts for high-achieving low-income students.

TABLE 3

Differences before and after introducing no-loan programs (all institutions)

	Pre	Post	Difference
No-loan	14.7%	15.7%	1.0%
Comparison	20.4%	20.3%	-0.1%
Difference	-5.7%	-4.6%	**1.1%**

TABLE 4

Differences before and after introducing no-loan programs (public institutions)

	Pre	Post	Difference
No-loan	18.9%	20.1%	1.3%
Comparison	23.3%	23.3%	0.0%
Difference	-4.5%	-3.2%	**1.3%**

TABLE 5

Differences before and after introducing no-loan programs (private institutions)

	Pre	Post	Difference
No-loan	12.0%	13.7%	1.7%
Comparison	17.8%	17.7%	-0.1%
Difference	-5.7%	-4.0%	**1.8%**

Private No-Loan Colleges

Like public institutions, private no-loan colleges tend to be less economically diverse than their highly-selective comparison group. In the years before they introduced no-loan programs, only 12.0 percent of undergraduates at private no-loan institutions received Pell Grants **(TABLE 5)**. This value was nearly 6 percentage points lower than their comparison institutions. In the years after they introduced the new aid policies, no-loan institutions increased their share of Pell Grant students to 13.7 percent (a 1.7 percentage point gain). Meanwhile, the comparison institutions remained stagnant, making no gains in the representation of Pell Grant students at their campus. In fact, the share of undergraduates receiving Pell Grants declined by a modest 0.1 percentage points.

These patterns hold even after controlling for various institutional characteristics. The regression model demonstrates that the introduction of no-loan programs at highly selective private institutions yields gains to campus economic diversity. Campuses where no-loan programs were in operation for a longer period (at least five years) experienced even greater gains in Pell Grant enrollments.

Conclusion

Since Princeton adopted the nation's first no-loan program, other U.S. colleges and universities have implemented similar financial aid programs that eliminate (or greatly reduce) price barriers for eligible students. This study finds that the introduction of these no-loan programs has indeed resulted in greater economic diversity at public and private campuses. Additionally, the longer a campus operates a no-loan program, the greater economic diversity it will achieve. This study also finds that the highly selective colleges and universities that never adopted no-loan policies were unable to increase the levels of low-income students on campus.

The introduction of no-loan programs is a step in the right direction, and they will likely influence students' ability to participate and persist in highly selective colleges. However, given the currently low proportions of low-income students, these campuses have a long way to go before truly equalizing educational opportunities for our nation's highest-achieving low-income students. Although most no-loan colleges have made progress toward expanding the share of undergraduates from lower-income families, more work can be done. The following recommendations can help colleges make progress toward these ends:

Recommendation 1: ***Target eligibility requirements to Pell Grant-eligible students.***

The majority of no-loan programs are targeted to low- and moderate-income students. This is (and should remain) the strategy that most public institutions employ. This is one of the greatest strengths to the current program designs, and it is likely the primary reason behind the positive gains in Pell enrollments at these institutions. To continue making progress, campuses must be vigilant in their commitment to economic diversity. If campuses eliminate income requirements, these aid programs will become less targeted on low-income students and, as a result, will have less effect on campus economic diversity.

The purchasing power of the Pell Grant has declined for several years, rebounding only modestly in recent years. Given tenuous federal funding patterns due to the discretionary nature of Pell funding, low-income students will become increasingly reliant on other aid providers (such as their campuses) to help them afford the rising price of college tuition. To stay committed to access and affordability, particularly for high-achieving low-income students, no-loan programs will work best when campuses target their aid to the students with the greatest need. Thus, our nation's lowest-income students will not be priced out of educational opportunities and our campuses will benefit from a more economically inclusive learning environment.

Recommendation 2: ***Actively publicize the programs and reach out to low-income students.***

A student's first experience with a prospective college is often through the college's Web site. Unfortunately, many no-loan institutions do a poor job of publicizing the fact that low-income students qualify for generous financial aid packages. In a recent review of campus financial aid Web sites,[31] researchers found that most no-loan institutions do not publicize their programs effectively. In fact, many campuses make it nearly impossible to determine whether they even offer a "no-loan" pledge. As a result of this lack of visibility, low-income students who are going through the college-search process may never apply to a college simply because they assume it is too expensive. When campuses design and implement no-loan programs, they must also design an aggressive outreach and marketing campaign.

UNC might serve as an example, as its Carolina Covenant program has high state (and even national) visibility. UNC's leaders are committed to the program, so they have been willing to allocate resources to ensure the program is effective at increasing participation.[32] Similarly, UVA integrates its no-loan program with high school visits and additional assistance to help prospective students complete financial aid applications.[33] Campuses should not impose additional financial hurdles on low-income students; rather, they should be more proactive and engaged with outreach to help ensure that students make college choices. Doing so will help students find better institutional matches, while simultaneously helping them find ways to pay for college. Student financial aid programs are often vexed with these information and communication challenges, so campus leaders should design programs that have clear and highly visible eligibility requirements and application processes.

[31] Perna, Lundy-Wagner, Yee, Brill, and Tadal 2010.
[32] Fiske 2010.
[33] Tebbs and Turner 2006.

Recommendation 3: ***Avoid "skimming" to increase economic diversity.***

When well-publicized, these programs have the potential to generate greater interest among high-achieving low-income students. When this occurs, enrollment management professionals may be tempted to use these aid programs as a marketing strategy that simply drums up interest among the highest-achieving low-income students. As a result of this increased demand, opportunistic colleges may try to "skim" the top low-income students without actually changing the total proportion of low-income students on campus. Clearly, colleges have an interest in crafting a class of the most desirable students, so it should be no surprise that they would be tempted to leverage these programs in ways that serve institutional interests beyond making for a more inclusive and economically diverse campus. Colleges must be steadfast in their commitment to improving diversity, so campus leaders ought to be concerned about whether it is only the "profile" of low-income students that is changing as a result of the new aid policy.

To prevent skimming, colleges should evaluate the extent to which their campuses have become more (or less) economically diverse as a result of the new aid programs. Colleges are constantly pursuing ways to maximize their reputation and prestige, so enrollment management professionals and campus leaders must be vigilant in their efforts to use these programs as a tool for achieving equity and excellence. Rather than being used solely to improve the academic profile of the incoming cohort, these programs should be designed to ensure greater economic diversity on campus; achieving the latter objective will ensure that the former also occurs, rather than sacrificing one for the other.

Recommendation 4: *Federal/state incentives to encourage more colleges to adopt these policies.*

Many campus leaders may wish to establish a no-loan program, but they are sobered by the fiscal reality of budgetary constraints. A dollar spent on financial aid is a dollar that could have been spent anywhere else at the institution, unless these funds come from the institution's endowment. Unfortunately, few colleges have large enough endowments to start no-loan programs, and those that do have large endowments already offer the programs. To continue the progress toward greater inclusiveness for low-income students, the federal government and states should offer incentives for colleges to adopt no-loan programs.

This would not be the first time that an intergovernmental relationship was formed to invest in need-based aid. In the 1970s, the federal government created the State Student Incentive Grant, which matched federal aid to state aid, in order to get more states to offer aid to students. This program was quite successful; today, all 50 states operate a need-based grant aid program. The expansion of federal and state need-based aid was a cornerstone to the expansion of educational opportunities during the 1970s.

Similarly, the federal government, in partnership with states, should offer incentives to help more colleges offer no-loan programs. One possible arrangement is for the federal government to make a new incentive grant that not only encourages states to link their state need-based aid to the Pell Grant program but also offers incentives to institutions that align their campus aid with the Pell Grant program. With this collaborative effort, policymakers would not only improve access and affordability for low-income students, but they would also be able to improve the coordination of the fragmented financial aid "system." Aligning resources in this way may also improve students' knowledge about whether they qualify for the no-loan program. A student who knows they are Pell Grant-eligible would also know to expect state and institutional financial aid. Given that states, the federal government, and most institutions (public and private) share a common goal of improving educational access and affordability, this might be a viable policy experiment.

The positive enrollment outcomes found in this brief give hope to the idea that colleges and universities can become more inclusive in terms of economic status. However, we still have a long way to go before the nation's highest-achieving low-income students no longer "undermatch" when applying to highly selective colleges and universities. Even after introducing no-loan programs, most colleges are still below their comparison peers in terms of campus economic diversity. However, these programs are a step in the right direction. By removing price barriers as outlined in this brief, colleges and universities may someday become more representative of our nation's economic diversity. Reaching these goals will take significant effort on the part of institutions, and states and the federal government could play a more direct role in scaling up the success of current institutional financial aid practices.

References

Arenson, K. W. 2001. “Princeton to Replace Loans With Student Scholarships.” *New York Times*, January 28.

Avery, C., C. M. Hoxby, C. K. Jackson, K. Burek, G. Pope, and M. Raman. 2006. *Cost Should Be No Barrier: An Evaluation of the First Year of Harvard’s Financial Aid Initiative.* Cambridge, MA: National Bureau of Economic Research.

Bastedo, M., and O. Jaquette. 2011. “Running in Place: Low-Income Students and the Dynamics of Higher Education Stratification.” *Educational Evaluation and Policy Analysis*, 33(3): 318–39.

Bowen, W. G., and D. Bok. 2000. *The Shape of the River.* Princeton, NJ: Princeton University Press.

Bowen, W. G., M. M. Chingos, and M. S. McPherson. 2009. *Crossing the Finish Line: Completing College at America’s Public Universities*. Princeton, NJ: Princeton University Press.

Carnevale, A., and S. Rose. 2004. “Socioeconomic Status, Race/Ethnicity, and Selective College Admissions.” *America’s Untapped Resource: Low-Income Students in Higher Education*. New York, NY: The Century Foundation.

DesJardins, S. L., D. A. Ahlburg, and B. P. McCall. 2002. “Simulating the Longitudinal Effects of Changes in Financial Aid on Student Departure from College.” *The Journal of Human Resources*, 37(3): 653–79.

________. 2006. “An Integrated Model of Application, Admission, Enrollment, and Financial Aid.” *Journal of Higher Education*, 77(3): 381–429.

Fiske, E. 2010. “The Carolina Covenant.” Rewarding Strivers: *Helping Low-Income Students Succeed in College*. New York, NY: The Century Foundation.

Gerald, D., and K. Haycock. 2006. *Engines of Inequality: Diminishing Equity in the Nation’s Premier Public Universities.* Washington, DC: Education Trust.

Heller, D. 1997. “Student Price Response in Higher Education.” *Journal of Higher Education*, 68(6).

Hemelt, S. W., and D. E. Marcotte. 2008. *Rising Tuition and Enrollment in Public Higher Education.* Bonn, Germany: IZA.

Hill, C. B., and G. C. Winston. 2006. “How Scarce Are High-Ability, Low-Income Students.” *College Access: Opportunity or Privilege?* Washington, DC: College Board.

________. 2006. Access: Net prices, Affordability, and Equity at a Highly Selective College." *Economics of Education Review. Volume 25, Issue 1, February, Pages 29-4*1.

Institute for Higher Education Policy. 2011. *Initial College Attendance of Low-Income Young Adults.* Washington, D.C.

Linsenmeier, D. M., H. S. Rosen, and C. E. Rouse. 2006.

"Financial Aid Packages and College Enrollment Decisions: An Econometric Case Study." *Review of Economics and Statistics*, 88(1): 126–45.

Lips, A. J. A. 2011. "A Typology of Institutional Loan Replacement Grant Initiatives for Low-and Moderate-Income Students." *The Review of Higher Education*, 34(4): 611–55.

McPherson, M. S., and M. O. Schapiro. 1991. "Does Student Aid Affect College Enrollment? New Evidence on a Persistent Controversy." *The American Economic Review*, 81(1): 309–18.

Pallais, A., and S. Turner. 2006. "Opportunities for Low-Income Students at Top Colleges and Universities: Policy Initiatives and the Distribution of Students." *National Tax Journal*, 59(2): 357.

Perna, L., V. Lundy-Wagner, A. Yee, L. Brill, and T. Tadal. 2010. "Showing Them the Money: The Role of Institutional Financial Aid Policies and Communication Strategies in Attracting Low-Income Students." *Recognizing and Serving Low-Income Students in Higher Education: An Examination of Institutional Policies, Practices, and Culture*, ed. A. Kezar. New York, NY: Routledge.

Project on Student Debt. 2011. Financial Aid Pledges. The Project on Student Debt (http://projectonstudentdebt.org/pc_institution.php) retrieved on April 28, 2011.

Rothstein, J., and C. Rouse. 2007. *Constrained After College: Student Loans and Early Career Occupational Choices.* SSRN eLibrary.

St. John, E. 2000. "The Impact of Student Aid on Recruitment and Retention: What the Research Indicates." *New Directions for Student Services*(89): 61–75.

St. John, E., S. Hu, and A. Fisher. 2010. *Breaking Through the Access Barrier: Academic Capital Formation Informing Public Policy*. New York, NY: Routledge.

Tebbs, J., and S. Turner. 2006. "The Challenge of Improving the Representation of Low-Income Students at Flagship Universities." *College Access: Opportunity or Privilege?* ed. M. McPherson and M. Schapiro. Washington, DC: College Board.

U.S. Department of Education. National Center for Education Statistics. 2008. *National Postsecondary Student Aid Study.*

________. 2007. Integrated Postsecondary Education Data System.

Waddell, G. R., and L. D. Singell Jr. 2011. "Do No-Loan Policies Change the Matriculation Patterns of Low-Income Students?" *Economics of Education Review*, 30(2): 203–14.

Zhang, L., and E. Ness. 2010. "Does State Merit-Based Aid Stem Brain Drain?" *Educational Evaluation and Policy Analysis*, 32(2): 143–65.

Appendix

What would have happened to low-income student enrollment levels if a no-loan college never adopted its no-loan program? Would low-income student enrollment levels still rise? These questions are impossible to answer since they can never be observed; yet, this is exactly what we want to know to determine whether the introduction of a no-loan program has an impact on enrollment decisions. Since we cannot observe what would have happened in the absence of the new aid policy, this brief compares enrollment changes at no-loan institutions (the treatment group) with enrollment changes at similar institutions that never introduced the aid policy (the comparison group). The introduction of a no-loan program can simulate a natural experiment, in which the new policy is a causal event shaping enrollment behaviors. Social science research can rarely identify true causal relationships, so this quasi-experimental design is implemented to address this identification problem. The following equation addresses research question one, regarding the impact of introducing a no-loan policy on low-income enrollment:

EQUATION 1

$$lnY_{it}=a+\beta_1(treat_i)+\beta_2(after_t)+\beta_3(treat_i{*}after^t)+\beta_4(controls_{it})+\eth_i+\eta_t+u_{it} \quad (1)$$

Where Y is the natural log of total Pell Grant recipients enrolled at each institution (*i*) over time (*t*). The binary variable treat takes on the value of one for all institutions (*i*) offering no-loan policies and 0 for the comparison institutions. The binary variable *after* takes the value of one during each year (*t*) an institution operates a no-loan policy. To specify the average effect on the treatment group, *treat* and *after* are interacted where β_3 yields the coefficient estimate of the effect introducing a no-loan policies has on Pell Grant enrollment. A vector of *controls* accounts for institutional endowment size, tuition level, percent minority, SAT scores, and institutional size that are expected to be associated with low-income student enrollment levels (all available from the Integrated Postsecondary Education Data System). Year and institutional effects are included ($\eth_i$ and η_t) to control for annual and institution-specific effects that are expected to vary with regard to Pell Grant enrollments, while the robust error term is denoted with *u*. Results from this equation are found in models one and two, and all continuous variables have been transformed into their natural logs to aid in model conformity and interpretation of results. Results should be interpreted as elasticities, where a 1 percentage-point change in a continuous predictor variable is associated with an "x" percentage-point change in Pell enrollment, *ceteris paribus*. To address the second research question, **EQUATION 1** is modified below (**EQUATION 2**) by incorporating controls for the number of years a program has been in operation ($opyrs_{it,\,1\text{-}5}$):

EQUATION 2

$$lnY_{it}=a+\beta_1(treat_i)+\beta_2(after_t)+\beta_3(treat_i{*}after^t)+\beta_4(opyrs_{it,\,1\text{-}5})+\eth_i+\eta_t+u_{it} \quad (2)$$

Where *opyrs* is ranges from 1 to 5 for institutions that implemented no-loan policies between 2005 and 2008. The average duration (*opyrs*) of no-loan policies in this sample is two years. **TABLE 6** displays the regression estimates of these models.

TABLE 6

Regression estimates on percentage point changes in Pell Grant enrollment (natural logs)

	All institutions		Publics only	Privates only
	I	II	III	IV
After	-0.040*	-0.041*	-0.049**	-0.031
	(0.025)	(0.023)	(0.024)	(0.032)
Treatment	-1.552***	-0.922***	0.168	10.741**
	(0.014)	(0.232)	(0.117)	(4.978)
Treatment * After	**0.091*** **	**0.080*** **	**0.038** **	**0.069* **
	(0.028)	(0.024)	(0.019)	(0.037)
Endowment size per FTE		-0.006	-0.001	-0.017
		(0.008)	(0.008)	(0.011)
Published tuition price		0.020	0.043	0.007
		(0.025)	(0.104)	(0.013)
Total minority student enrollment		0.234***	0.204***	0.267**
		(0.085)	(0.071)	(0.116)
Median SAT of incoming cohort (75th pctle.)		-1.066***	-1.088**	-1.047*
		(0.385)	(0.434)	(0.594)
Total undergraduate enrollment		0.407**	0.621***	0.192
		(0.192)	(0.149)	(0.317)
First-year operating			0.026	-0.006
			(0.017)	(0.024)
Second-year operating			0.036	0.027
			(0.027)	(0.034)
Third-year operating			0.043	0.075
			(0.033)	(0.064)
Fourth-year operating			0.056*	0.049
			0.033)	(0.051)
Fifth-year operating			0.112***	0.211***
			(0.039)	(0.058)
Observations	920	920	368	552
Number of institutions	115	115	46	69
Institution effects	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Adjusted R^2	0.48	0.58	0.67	0.55

NOTE: ROBUST STANDARD ERRORS IN PARENTHESES, *=P<.1,**= P<.05,***= P<.01.

The Institute for Higher Education Policy (IHEP) is a nonpartisan, nonprofit organization committed to promoting access to and success in higher education for all students. Based in Washington, D.C., IHEP develops innovative policy- and practice-oriented research to guide policy-makers and education leaders, who develop high-impact policies that will address our nation's most pressing education challenges.

IHEP

INSTITUTE FOR HIGHER EDUCATION POLICY
1320 19th Street, NW, Suite 400
Washington, DC 20036

202 861 8223 **TELEPHONE**
202 861 9307 **FACSIMILE**
www.ihep.org **WEB**

INSTITUTE FOR HIGHER EDUCATION POLICY
1320 19th Street, NW, Suite 400
Washington, DC 20036

202 861 8223 **TELEPHONE**
202 861 9307 **FACSIMILE**
www.ihep.org **WEB**