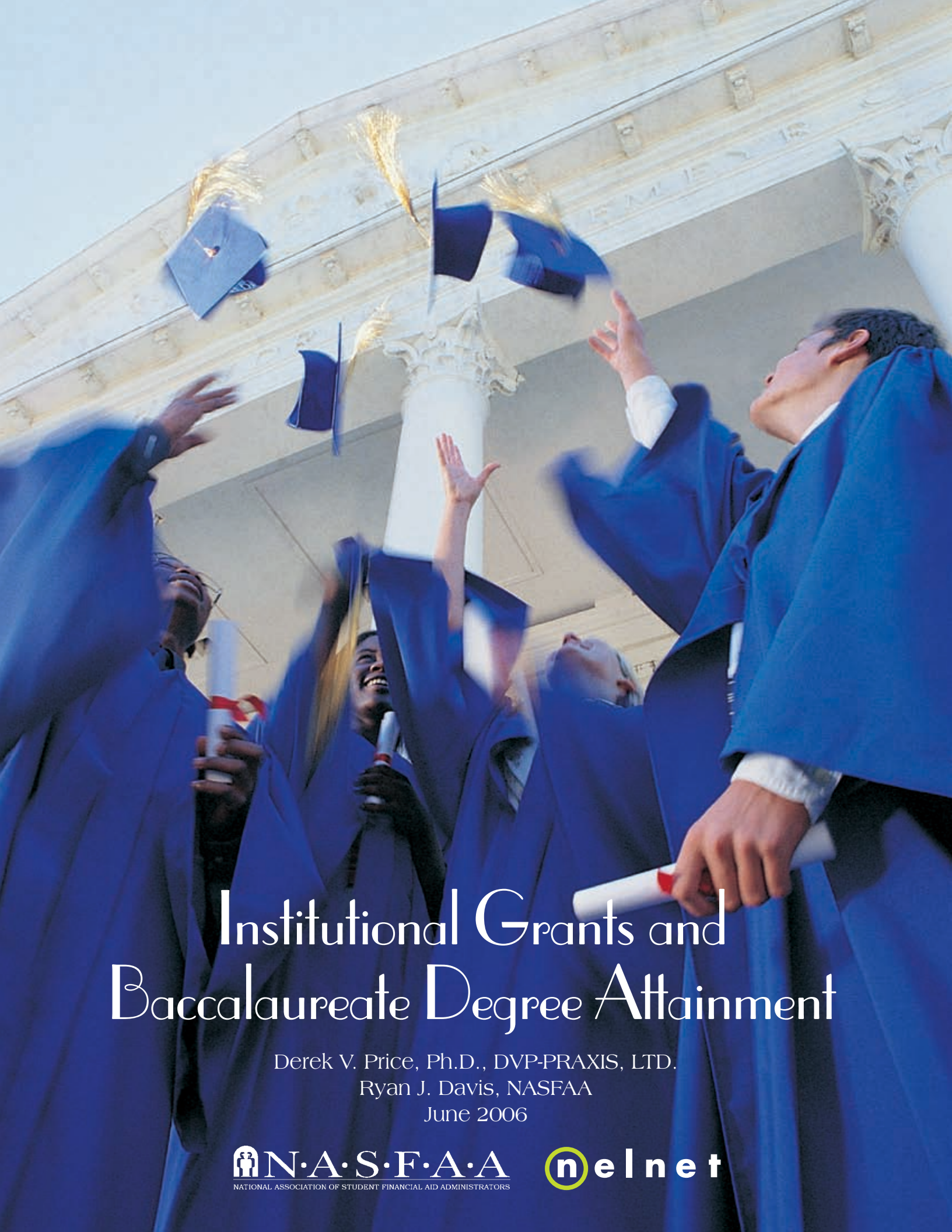

Institutional Grants and Baccalaureate Degree Attainment

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NATIONAL ASSOCIATION OF STUDENT FINANCIAL AID ADMINISTRATORS

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FOREWORD

Do institutional grants affect students' persistence towards bachelor's degrees? Answers to this question are vitally important because dollars provided by colleges and universities have become the second largest source of grant aid to students. Nearly all of the recent research on institutional grants has focused on the criteria used to distribute the aid and the economic and demographic characteristics of the recipients. Very few studies have tried to establish a link between the awarding of institutional aid and student success. This lack of research is particularly troubling given the recent suggestions by some policymakers that colleges and universities have not done enough to improve their rates of student success.

To answer this question, the National Association of Student Financial Aid Administrators (NASFAA) commissioned Dr. Derek V. Price of the consulting firm DVP-PRAXIS to undertake a study of institutional aid and persistence, using the most recently available financial aid and persistence data from the National Center for Education Statistics. Working with Ryan J. Davis, NASFAA's research and policy associate, Dr. Price has been able to provide convincing evidence of the need to focus more attention on persistence issues to ensure that financial aid is both providing student access and assuring student degree completion. Brief biographies of Dr. Price and Mr. Davis are included in the About the Authors section of this report.

This report is the second in a series of studies on critical issues involving access to higher education for underrepresented groups and ways these barriers can be overcome. The series is being supported by a grant from the National Education Loan Network (Nelnet). The topics that will be covered in this NASFAA/Nelnet College Access Series have been decided by the NASFAA staff, in consultation with the Association's Research Committee.

In addition to Dr. Price's and Mr. Davis' contributions to this series, NASFAA wishes to acknowledge the support of Nelnet, particularly David Bottegal, Chief Marketing Officer and Executive Director, for their support. For more information on this series, please contact Kenneth Redd, NASFAA Director of Research and Policy Analysis, at *reddk@nasfaa.org*.

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EXECUTIVE SUMMARY

Many researchers and policy analysts have become concerned about the effects of the trends in need- and merit-based grants on students' ability to enroll in college. This concern has emerged because much of the growth in institutional aid spending has been directed to undergraduates with academic merit rather than to those with the greatest financial need. The amount of grant aid awarded by postsecondary institutions more than doubled between the academic years 1994-95 and 2004-05, rising from approximately $10.3 billion to over $24 billion, according to College Board estimates. The National Center for Education Statistics' recent financial aid surveys reveal that between 1990 and 2004 average merit awards to undergraduates at public four-year colleges jumped 171 percent in current (non-inflation-adjusted) dollars. At private four-year institutions, the average merit grant tripled. In contrast, the average institutional grant awarded based on students' financial need at public four-year institutions grew by only 37 percent in current dollars; similarly, at private four-year institutions, the average need-based grant amounts increased substantially slower than merit-based grant amounts.

While the effects of the shift from need- to merit-based grants on student enrollment and receipt of aid have been examined thoroughly by a number of analysts, very few recent reports have examined the effects of these grants on students' persistence towards completing bachelor's degrees. To examine this issue, this report explores the linkages between the receipt of institutional need- and merit-based grants in the first year of college and degree completion within six years for students who began college in academic year 1995-96. The data are from the National Center for Education Statistics' *Beginning Postsecondary Students Longitudinal Survey* (BPS 1996:2001), a nationally representative sample of students who have enrolled in a postsecondary institution in the 50 states, the District of Columbia, and Puerto Rico. Data were collected from undergraduate students through computer-assisted telephone interviews in 1996, 1998, and 2001. The analysis for this report was limited to students who began college at public and private nonprofit four-year institutions because community

college students seldom receive institutional grant aid. The BPS data were used to examine the number and demographic characteristics of beginning students who received need- and merit-based institutional grants and average grant amounts; the percentage of tuition and fee charges that recipients covered with their institutional grants; and the percentage of institutional aid recipients who completed their bachelor's degree programs within six years of entering higher education.

Students who initially enrolled at private four-year colleges and universities received need-based institutional grants that were almost three times as large as those awarded to undergraduates who initially enrolled at public colleges and universities.

Slightly more than one-third of students (37 percent) in this BPS sample received some form of institutional grant aid in 1995-96; 26 percent received need-based grants; and 16 percent received merit aid. Need- and merit-based grant awards were not mutually exclusive, as about 6 percent of students received both types of grants. About 62 percent of first-year undergraduates who initially enrolled in private four-year colleges and universities received institutional grant aid, compared with less than 23 percent of those who initially enrolled in public four-year institutions. Moreover, students who initially enrolled at private four-year colleges and universities received need-based institutional grants that were almost three times as large as those awarded to undergraduates who initially enrolled at public colleges and universities ($6,031 vs. $2,227). Similarly, students who initially enrolled at private colleges and universities and received merit-based institutional grants had much larger awards, on average, than did merit awardees at public colleges and universities ($5,325 vs. $2,434).

Although private colleges and universities awarded significantly larger institutional grants, these funds did not necessarily cover a larger share of tuition and fees charged to the awardees. At public four-year institutions, the average need-based grants were equal to about 28 percent of average tuition and fee charges; in comparison, average need grants accounted for roughly 31 percent of the average tuition for beginning student recipients at private four-year institutions. This 3-percentage point difference was not statistically significant. On the other hand, among beginning students who received merit-based institutional grants, the difference in the proportion of tuition covered by those awards was significantly higher for undergraduates who initially enrolled at private colleges and

universities than for students who initially enrolled at public four-year institutions: 31 percent versus 23 percent.

Differences in student characteristics were also examined for institutional grant recipients. Students who received need-based grants at either public or private four-year institutions were more likely to have none of the risk factors normally associated with leaving college without a degree (delaying postsecondary education for more than one year after high school graduation, being financially independent, attending part-time, working full-time while enrolled, having children or dependents other than a spouse, being a single parent, and dropping out of high school). At public colleges and universities, Hispanic students and students from upper-income families (incomes greater than 452 percent of the federal poverty level) who initially started at public colleges and universities were more likely to receive need-based institutional grants, while African Americans were less likely to receive these grants. Need-based institutional grant recipients were also more likely to attend a research or doctoral institution and an institution with selective or very selective admissions criteria. At private colleges and universities, institutional selectivity was not statistically related to the receipt of institutional need-based grant aid; that is, private colleges and universities across all selectivity levels rewarded institutional need-based grants in similar proportions. In addition, students who started at private institutions and attended a baccalaureate or liberal arts college were more likely to receive institutional need-based grants.

Like need-based institutional grant recipients, students at both public and private four-year institutions who received merit-based institutional grants were more likely to have zero risk factors. Beginning students at public colleges and universities who received merit-based institutional grants were less likely to be Hispanic; however, there were no statistical differences in the family income levels of merit-based grant recipients and non-recipients. Merit-grant recipients at public four-year institutions also were more likely to attend research or doctoral universities and more likely to attend selective colleges and universities. In contrast, postsecondary students who began at private colleges and universities and who received merit-based

Students who received need-based grants at either public or private four-year institutions were most likely to have none of the risk factors normally associated with leaving college without a degree.

institutional grants in their first year were more likely to attend baccalaureate liberal arts colleges and to attend private colleges and universities categorized as *least selective* or *selective*. There were no statistically significant differences between institutional merit-based grant recipients and non-recipients at private four-year institutions according to parental educational attainment, family income, or dependency status; however, merit grant awardees at private colleges and universities were more likely to be African American.

Multivariate logistic regression results indicate that institutional grant aid is a positive predictor of graduating within six years, after controlling for student characteristics and institutional selectivity level. For students who began at public four-year colleges and universities:

- Increasing the ratio of institutional need-based grants to tuition by one category (for example, increasing a need-based grant amount so that a student could cover more than half of tuition) would increase the probability of a student graduating within six years by 14 percent.
- Increasing the ratio of institutional merit-based grants to tuition by one category (for example, increasing a grant amount so that a student could cover more than half of tuition) would increase the probability of a student graduating within six years by 22 percent.

Unfortunately, fewer than 25 percent of institutional need-based grant recipients at public four-year institutions received grant amounts that covered at least half of tuition and fees; among institutional merit-based grant recipients, about 19 percent received grant amounts that covered at least half of tuition and fees.

For students who began at private four-year colleges and universities, the ratio of merit-based grant aid to tuition is *not* a statistically significant predictor of baccalaureate degree attainment within six years. However, increasing the ratio of need-based grants to tuition by one category (for example, increasing a need-based grant amount so that it covers more than half of tuition) would increase the probability of a student graduating within six years by 16 percent. Less than 25 percent of institutional need-based grant recipients at private four-year

Multivariate logistic regression results indicated that institutional grant aid is a positive predictor of graduating within six years, after controlling for student characteristics and institutional selectivity level.

institutions received grant amounts that covered at least half of tuition and fees.

This analysis suggests that institutional need-based grants are an important predictor of college success for low- and moderate-income students. In particular, the percentage of tuition and fees (as well as the total cost of college) covered by grant financial aid in the first year may affect the likelihood that a student will graduate within six years. Put simply, one strategy that could be used to increase the percentage of students who earn bachelor's degrees within six years is to provide larger grants in the first year of college. The amount of first-year institutional grants should be large enough that, when combined with other grant aid, it covers at least half of tuition and fees and between 20 and 30 percent of the total price of attendance. Given an emerging national interest in improving graduation rates, educators, researchers, private foundations, and policymakers should consider how to develop more definitive evidence on the impact of institutional grant aid in each year of college. Such evidence is necessary for financial aid administrators and other college leaders to develop and implement more effective strategies for financial aid packaging and thereby increase the number of students who graduate within six years.

INTRODUCTION

Institutional grants are funds disbursed to students by colleges and universities to help students pay their educational expenses. Such grants, which are separate and apart from state and federal aid programs, are pivotal to increasing the amount of financial aid available for undergraduates. Institutional grants have become the second largest source of total grant dollars distributed to students, representing about one of every five grant dollars (Baum and Payea, 2005). While colleges use a variety of criteria to award institutional grant aid, they generally distribute this assistance according either to students' demonstrated financial need (determined when they apply for financial aid at their postsecondary institutions)[1] or academic merit (determined by students' academic grades or scores on standardized college admissions tests).

While a significant amount of recent research has explored the growth in need- and merit-based institutional grant aid, fewer studies have looked at the effects of institutional aid on baccalaureate degree attainment (Horn and Berger, 2004). This report explores the linkages between the receipt of institutional need- and merit-based grants in the first year of college and degree completion within six years. The first part of the study summarizes the recent trends in institutionally provided grant assistance and how these trends compare with the growth in college prices and student loan debt. Next, the study reviews the findings of a few prior studies that have attempted to draw links between grant aid and academic success. The third part of the study analyzes the relationship between institutional aid and six-year degree attainment rates among institutional grant recipients who began at public and private four-year colleges.

[1] Grants based on financial need are generally reserved for students from low- and moderate-income families, while merit-based dollars are distributed to students regardless of their family income or financial need. Non-academic merit award criteria may include athletics or artistic talents, academic majors, state or regional residency, and religion.

TRENDS IN INSTITUTIONAL AID AND COLLEGE PRICES

During the past decade, the amount of aid awarded by postsecondary institutions more than doubled, rising from approximately $10.3 billion in 1994-95 to over $24 billion in 2004-05 (College Board, 2005a). For colleges and universities, spending on institutional grants has been one of the fastest growing expense categories (Cunningham, Wellman, Clinedinst, and Merisotis, 2001). Much of the increased grant spending appears to have been directed towards merit-based aid. According to the National Center for Education Statistics (2003, 2005), the proportion of undergraduates at public four-year colleges who received merit grants grew from 5 percent in 1990 to 17 percent in 2004, and the average merit award amount jumped 171 percent in current dollars. At private four-year institutions, the average merit grant tripled. In contrast, the proportion of undergraduates at public four-year colleges and universities with need-based institutional grants increased more slowly — from 10 percent to 14 percent — and the average amount grew by 37 percent in nonadjusted dollars. At private four-year institutions, the average need-based grant increased by 78 percent (National Center for Education Statistics, 2003, 2005). Put simply, while spending on both need-based and merit-based institutional grants increased in the last fifteen years, the share of students who received merit awards and the amount of merit-based grants grew at much higher rates at both public and private four-year colleges and universities.

This apparent shift by colleges towards merit-based institutional aid (and away from need-based awards) occurred at a time when the total price of attending college — tuition and fees, room and board, books, educational supplies, and transportation — rose 32 percent (adjusted for inflation) at private four-year institutions and 36 percent at public four-year colleges and universities. In 2004-05, total annual charges to students averaged $27,516 at private institutions and $11,354 at four-year public institutions (College Board, 2005b). Moreover, financial support for federal and institutional programs that award assistance based on students' financial need increased more modestly. In the last decade, for example, total appropriations for Pell Grants, the largest government program for low-income

college students, increased by 86 percent, but the average Pell Grant award rose by only 29 percent (College Board, 2005a).

With these trends in mind, research on institutional aid has focused primarily on the changes in criteria and mechanisms used by postsecondary institutions to determine student awards. Researchers, educators, student advocates, and some policymakers worry that low- and moderate-income students are increasingly becoming "priced-out" of their first-choice institution or cannot attend college altogether. As Heller and Nelson Laird (1999) point out, students from middle- and high-income families have been the primary beneficiaries of merit-based financial aid. Horn and Peter (2003) found that institutional grant awards are increasing especially for those students in the highest income quartile at private, not-for-profit institutions. Similarly, the College Board (2005b) found that during the 1990s institutional grant aid rose most rapidly for students at the upper end of income distribution at both public and private institutions. In contrast, Davis (2003) documented that the proportion of institutional grants awarded to students from families with incomes below $40,000 declined by 16 percent at both public and private four-year colleges and universities between 1995 and 1999. Middle- and upper-income students are more likely to meet merit-based award criteria due to their greater access to rigorous high school curricula and test preparation courses (Redd, 2002).

Researchers, educators, student advocates, and some policymakers worry that low- and moderate-income students are increasingly becoming "priced-out" of their first-choice institution or cannot attend college altogether.

These findings suggest that public and private colleges increasingly are using institutional aid as a recruitment tool — referred to as "tuition discounting" — to compete for students with certain academic attributes rather than as a means to equalize college opportunity for low- and moderate-income students (Davis, 2003). One potential consequence of tuition discounting is that low- and moderate-income students and their families are becoming increasingly more sensitive to rising tuition and fees and may choose not to enroll because of rising college prices (Hossler, Hu, and Schmit, 1999).

A second consequence of rewarding more institutional merit-based grants is that financially needy students incur significantly larger amounts of student loan debt. In the past decade, undergraduate Stafford Subsidized Loan borrowing grew by more than 48 percent in inflation-adjusted dollars while

Stafford Unsubsidized Loans jumped 664 percent (College Board, 2005b). In 1999-2000, almost 11 percent of students who borrowed the maximum Stafford Unsubsidized Loan were from the lowest-income quartile families and 42 percent were from middle-income families; 16 percent of students who borrowed less than the maximum Stafford Unsubsidized Loan were from the lowest-income quartile families, and 61 percent were from middle-income families (Clinedinst, Cunningham, and Merisotis, 2003). These data indicate that a significant proportion of low- and middle-income families are relying on Stafford Unsubsidized Loans to help pay for college. This astronomical rise in unsubsidized borrowing is especially troublesome because the students are charged interest on these loans while they are enrolled in college. If the interest is not paid, it can be capitalized, which results in a much faster accumulation of student debt.

Increased borrowing has led to increased concern about higher post-college debt burdens for baccalaureate recipients. In 2002, the average undergraduate educational debt was $19,300, an increase of 60 percent since 1994 in real dollars (Choy and Li, 2005). In 2001, 36 percent of bachelor's degree recipients had to devote more than 9 percent of their gross monthly income to repaying student loans (Choy and Li, 2005). African Americans, Hispanics, and low-income students are much more likely to have educational debt burden that exceeds 8 percent of their gross monthly income (Price, 2004b).

RESEARCH ON INSTITUTIONAL AID AND STUDENT SUCCESS

A number of researchers and policy analysts have documented the consequences of rising prices, the shift to merit aid, and rising student debt on college access and choice and on educational debt burden and social inequality (see for example, Paulsen and St. John, 2002; Heller, 2005, 2002, and 2001; and Price, 2004a). Unfortunately, very few studies have considered the effect of institutional need- or merit-based grants on student success. The few reports that have addressed this topic were conducted more than a decade ago — before the substantial increase in institutional aid occurred. For example, Woodward (1988) found that renewable institutional grant awards lead to greater student persistence. Nora (1990) found that Hispanics are more likely to earn a higher grade point average as well as a certificate at two-year colleges when provided institutional aid.

One widely cited analysis of tuition discounting found that institutional expenditures on grant aid may reduce the availability of financial resources that can facilitate student retention, such as academic support programs and student support services (Redd, 2000). These effects were most pronounced at highly selective institutions where tuition discounts exceeded tuition revenue and at small liberal arts colleges that had limited endowments (Redd, 2000). One of the reasons net tuition revenue can decline as a result of tuition discounting is that institutions use money from tuition and fees collected from other students to award scholarships and grants to a small number of specifically targeted students (Davis, 2003). In short, while one of the core purposes of tuition discounting is to recruit meritorious students, the effects of this strategy can hinder institutional financial conditions with subsequent negative consequences for students (Martin, 2002).

More recently, Heller (2003) found financial aid — especially the continuous receipt of work-study aid — to be a positive predictor of bachelor's degree attainment;[2] moreover, students who received a need-based institutional grant of $1,200 in

[2] In Heller's study, the effect of non-need-based institutional grant amounts in the first year of college was not a significant predictor of degree attainment (the effect of need-based institutional grant amounts on degree attainment was not modeled).

their first year of college were 6 percentage points more likely to persist into their second year than were non-recipients. Gansemer-Topf and Schuh (2005) concluded that institutional grants contribute positively to retention and graduation rates at private baccalaureate liberal arts and general higher education institutions (with the exception of elite colleges). A recently released report from MDRC (Brock and Richburg-Hayes, 2006) documents the statistically significant and large impact of a $1,000-per-term scholarship on students' credit completions and term-to-term retention. These results are from an experimental design research project called Opening Doors that examines programs and practices that contribute to student success for low-income students at community colleges. The recent studies that have analyzed the effects of institutional grant aid on student outcomes show that additional grant aid contributes — and may even be a *causal* factor — in improving postsecondary student success.

Data and Sample

This study examines the relationship between institutional grant aid and degree attainment for students who began college in the academic year 1995-96. The data are from the National Center for Education Statistics' *Beginning Postsecondary Students Longitudinal Survey* (1996:2001). This nationally representative survey identifies students who have enrolled in a postsecondary institution in the 50 states, the District of Columbia, and Puerto Rico. Data were collected from undergraduate students through computer-assisted telephone interviews in 1996, 1998, and 2001. Thus, the sample can be used to measure the number of students who completed their educational programs within six years of entering higher education. For the final follow-up (2001), all respondents to the 1998 survey were eligible to be interviewed along with a sub-sample of 1998 nonrespondents; of the 9,100 students eligible for the 2001 survey, the weighted response rate was 83.6 percent.[3]

The analysis for this report was limited to students who began college at four-year institutions. The analytic sample size was 6,592 students. Table 1 on Page 14 illustrates the demographic characteristics of this group. This sample does not include community college students because they seldom receive institutional grant aid and because students who begin at a community college are at greater risk of not completing a bachelor's degree. Only 36 percent of students who enrolled in a community college as their first postsecondary institution in academic year 1995-96 had completed a certificate, associate's degree, or bachelor's degree within six years (Bailey et al., 2004). Low-income students, racial and ethnic minorities, and first-generation students had even lower six-year completion rates (Bailey et al., 2004).

DOES INSTITUTIONAL GRANT AID AFFECT GRADUATION WITHIN SIX YEARS?

[3] For more information about the BPS 96:01 survey, see the *Beginning Postsecondary Students Longitudinal Study: 1996-2001 Methodology Report* (NCES 2001-171).

More than 60 percent of first-year undergraduates who inititally enrolled at private four-year colleges and universities received institutional grant aid.

Table 1
Demographic Characteristics of Beginning Postsecondary Students

Gender	
Men	45.3%
Women	54.7%
Race and Ethnicity	
Black, Non-Hipanic	10.6%
Hispanic	10.8%
Asian/Pacific Islander	6.3%
White	70.6%
Other	1.7%
Percent of Family Income to Federal Poverty Threshold	
Up to 200%	30.5%
Between 201% and 264% (median)	10.7%
Between 265% and 452% (75th percentile)	28.9%
Greater than 452%	29.8%
Parental Educational Attainment	
High School or Less	28.6%
Some College	18.1%
Bachelor's or More	53.3%
Age	
Less than 25	96.0%
25 and Older	4.0%
Dependency Status	
Dependent	92.6%
Independent	7.4%
Number of Risk Factors	
Zero	79.7%
One	12.2%
Two or More	8.1%
Institutional Control – First Institution	
Public Four-Year	62.7%
Private Non-Profit Four-Year	35.9%
Private, For-Profit	1.4%
Institutional Carnegie Type – First Institution	
Research, Doctoral	41.3%
Masters, Comprehansive	31.5%
Baccalaureate, Liberal Arts	20.2%
Other	7.0%
Institutional Selectivity	
Least Selective	57.9%
Selective	17.7%
Very Selective	24.4%
Earned Bachelor's Degree within Six Years	**59.2%**
	N = 6,592

Source: National Center for Educational Statistics, BPS 1996:2001.

Table 2 below shows the percentage of beginning postsecondary students at four-year colleges and universities who received any institutional grant aid. About 37 percent of students in this analytic sample received some form of institutional grant aid in 1995-96; 26 percent received need-based grants and 16 percent received merit aid. Need- and merit-based grant awards were not mutually exclusive, as about 6 percent of students received both types of grants.

Table 2
Percentage of 1995-96 Beginning Postsecondary Students at Four-Year Colleges and Universities Who Received Institutional Grant Aid, by Type of Aid

Type of Institutional Grant Received	
Need-Based	26.2%
Merit-Based	16.0%
N = 6,592	

Source: National Center for Educational Statistics, BPS 1996:2001.

More than 60 percent of first-year undergraduates who initially enrolled in private four-year colleges and universities received institutional grant aid, compared with less than 23 percent of those who initially enrolled in public four-year institutions (see Table 3 on Page 16). Moreover, the amount of institutional grants is significantly larger, on-average, at private colleges and universities.[4] Students who initially enrolled at private four-year colleges and universities received need-based institutional grants almost three times as large as those awarded to undergraduates who initially enrolled at public colleges and universities ($6,031 vs. $2,227). Similarly, students who initially enrolled at private colleges and universities and received merit-based institutional grants had much larger awards, on average, than did merit awardees at public colleges and universities ($5,325 vs. $2,434).

Need- and merit-based grant awards were not mutually exclusive, as about 6 percent of students received both types of grants.

[4] The differences in mean grant amounts between public and private four-year institutions are statistically significant (p <.001) using a t-test of equality of means.

Public four-year institutions awarded slightly more need-based grants than merit-based grants in 1995-96. The average need-based grant was equivalent to about 28 percent of tuition and fee charges, compared with the average merit-based institutional grant, which covered 23 percent of tuition and fees (see Table 4 on Page 17). Private four-year institutions awarded about twice as many need-based institutional grants than merit-based grants, and the average amount of both need and merit awards represented roughly 31 percent of 1995-96 tuition and fees. Among students who received merit-based institutional grants, the proportion of tuition and fees covered by those awards was significantly higher for students who initially enrolled at private colleges and universities than for students who initially enrolled at public four-year institutions: 31 percent vs. 23 percent.[5]

Table 3
Percentage of 1995-96 Beginning Students Who Received Institutional Grant Aid, by Type of Aid and Control of First Institution Attended

Type of Institutional Grant	Public (average)	Private, Not-for-Profit (average)
Received Need-Based Only	12.4% ($2,227)	35.6% ($6,031)
Received Merit-Based Only	8.8% ($2,434)	13.9% ($5,325)
Received Both Need and Merit	1.5% ($3,908)	12.5% ($6,475)
Received Any Institutional Grant	22.7%	62%
	N = 4,134	**N = 2,367**

Source: National Center for Educational Statistics, BPS 1996:2001.

Differences in the characteristics of postsecondary students who received institutional need- or merit-based grants were also examined. Hispanic students and students from families with incomes greater than 452 percent of federal poverty level (greater than the 75th percentile of the income distribution) who initially started at public colleges and universities were more likely to receive need-based institutional grants (see Table 5 on Page 18). Need-based institutional grant recipients were also more likely to attend a research or doctoral institution and a

[5] T-tests on the ratio of institutional grants to tuition between public and private colleges were not statistically different for students who received need-based institutional grants.

selective or very selective college or university. Students with zero or one risk factor were more likely to receive institutional need-based grants, and need-based institutional grant recipients were less likely to work in the first-year of college.

Table 4
Average Ratio of Institutional Grant Aid to Tuition and Fees, by Institutional Control

	Public Four-Year (std. dev.)	**Private Four-Year** (std. dev.)	**Overall** (std. dev.)
Students who received need-based institutional grant	27.9% (51.7%) N = 575	30.9% (30.5%) N = 1,139	29.7% (38.9%) N = 1,714
Students who received merit-based institutional grant	23.4% (40.8%) N = 427	31.8% (30.5%) N = 624	28.4% (35.2%) N = 1,051

Source: National Center for Educational Statistics, BPS 1996:2001.

Postsecondary students who began at private colleges and universities and who received a need-based institutional grant in the first year were also more likely to be male; however, Hispanics were less likely to receive need-based institutional grants. There were no statistically significant differences between institutional need-based grant recipients at private four-year institutions and non-recipients according to parental educational attainment, family income, or financial dependency status. Like need-based grant recipients at public colleges and universities, those who started at private colleges and universities were more likely to have zero risk factors. However, in contrast to the pattern for students who began at public four-year institutions, institutional selectivity was *not* statistically related to the receipt of institutional need-based grant aid. In addition, students who started at private institutions and attended a baccalaureate or liberal arts college were more likely to receive institutional need-based grants.

Table 6 on Page 20 compares the demographic characteristics of beginning students who received merit-based institutional grants with those of all beginning postsecondary

Table 5

Comparison of 1995-96 Beginning Postsecondary Students Who Received Need-Based Institutional Grants With Non-Recipients, by Institutional Control

	Public Four-Year			Private Four-Year		
	Received Need-Based Institutional Grant	Sig.	All Public 4-Year Students	Received Need-Based Institutional Grant	Sig.	All Private 4-Year Students
Gender		*			*	
Men	49.8%		54.0%	47.0%		55.1%
Women	50.2%		46.0%	53.0%		44.9%
Race and Ethnicity						
African American	5.5%	***	10.8%	8.9%		9.4%
Hispanic	15.8%	***	10.6%	9.7%	*	11.2%
Asian/Pacific Islander	10.1%	***	6.3%	5.5%		6.4%
White	64.5%	**	69.8%	74.2%	***	71.1%
Other	1.9%		1.5%	1.8%		1.9%
Percentage of Family Income to Federal Poverty		**				
Up to 200 percent	25.2%		30.7%	27.8%		28.8%
Between 201% & 264% (median)	12.4%		11.2%	10.1%		10.2%
Between 265% & 452% (75th percentile)	29.0%		30.0%	28.9%		27.6%
Greater than 452%	33.4%		28.1%	33.2%		33.3%
Parental Education Attainment						
High School or Less	31.9%		30.2%	24.6%		24.5%
Some College	19.1%		19.7%	14.4%		15.5%
Bachelor's or More	49.0%		50.1%	61.0%		60.0%
Dependency Status		*				
Dependent	95.6%		93.2%	93.0%		93.3%
Independent	4.4%		6.8%	7.0%		6.7%
Number of Hours Worked Weekly – Year 1		**				
Zero	42.3%		38.4%	34.8%		34.7%
Less than 12	15.6%		14.6%	27.2%		27.5%
Between 13-19	20.9%		19.0%	15.8%		16.1%
20 or More	11.0%		22.7%	16.9%		16.1%
Did Not Answer/Don't Know	3.1%		5.4%	5.3%		5.7%
Number of Risk Factors		***			***	
Zero	84.1%		78.2%	88.8%		83.9%
One	14.4%		13.6%	7.6%		9.5%
Two or More	1.6%		8.3%	3.5%		6.7%
Institutional Carnegie Type – First Institution		***			***	
Research, Doctoral	62.6%		51.9%	21.5%		24.3%
Masters, Comprehensive	32.6%		36.8%	23.4%		23.4%
Baccalaureate, Liberal Arts	3.3%		6.9%	45.4%		42.6%
Other	1.2%		3.6%	7.6%		8.4%
Institutional Selectivity – First Institution		***				
Least Selective	45.4%		59.8%	52.8%		53.0%
Selective	23.9%		19.8%	14.8%		14.5%
Very Selective	30.7%		20.4%	32.4%		32.4%

Source: National Center for Educational Statistics, BPS 1996:2001. *Note: Statistically Significant* *****p< .001, **p< .01, *p< .05**

students in our sample. Merit-based awardees who started at public colleges and universities were more likely to be male and African American and less likely to be Hispanic. There were no statistical differences in the family income levels of merit-based grant recipients and non-recipients at public four-year institutions. Like need-based institutional grant recipients, merit-aid awardees were more likely to have zero risk factors and attend research or doctoral universities; they were also more likely to attend selective colleges and universities.

Postsecondary students who began at private colleges and universities and who received a merit-based institutional grant in the first year were more likely to be African American. There were no statistically significant differences between institutional merit-based grant recipients and non-recipients at private four-year institutions according to parental educational attainment, family income, or dependency status. However, like need- and merit-based grant recipients at public colleges and universities (and need-based grant recipients at private colleges and universities), those who started at private colleges and universities and received an institutional merit-based grant were more likely to have zero risk factors. Postsecondary students who started at private four-year institutions and attended baccalaureate liberal arts colleges were more likely to receive institutional merit-based grants; however, unlike the pattern of need-based institutional grant recipients who started at private colleges and universities, selectivity does matter. That is, students who attended the least selective and selective categories of private colleges and universities were more likely to receive merit-based institutional grants in the first year.

Need-based grant recipients who started at public colleges and universities were more likely to be Hispanic or Asian and less likely to be African American or White.

Table 6

Comparison of 1995-96 Beginning Postsecondary Students Who Received Merit-Based Institutional Grants With Non-Recipients, by Institutional Control

	Public Four-Year			Private Four-Year		
	Received Merit-Based Institutional Grant	Sig.	All Public 4-Year Students	Received Merit-Based Institutional Grant	Sig.	All Private 4-Year Students
Gender		*				
Men	51.1%		54.0%	55.0%		55.1%
Women	48.9%		46.0%	45.0%		44.9%
Race and Ethnicity						
African American	13.8%	*	10.8%	11.3%	*	9.4%
Hispanic	6.6%	**	10.6%	11.3%		11.2%
Asian/Pacific Islander	4.7%		6.3%	5.9%		6.4%
White	72.4%		69.8%	70.6%		71.1%
Other	1.9%		1.5%	1.0%	*	1.9%
Percentage of Family Income to Federal Poverty						
Up to 200 percent	32.0%		30.7%	30.9%		28.8%
Between 201% & 264% (median)	12.2%		11.2%	10.6%		10.2%
Between 265% & 452% (75th percentile)	33.2%		30.0%	29.6%		27.6%
Greater than 452%	22.6%		28.1%	29.0%		33.3%
Parental Education Attainment						
High School or Less	26.9%		30.2%	26.0%		24.5%
Some College	21.1%		19.7%	13.9%		15.5%
Bachelor's or More	52.0%		50.1%	60.2%		60.0%
Dependency Status						
Dependent	93.9%		93.2%	93.2%		93.3%
Independent	6.1%		6.8%	6.8%		6.7%
Number of Hours Worked Weekly – Year 1						
Zero	37.4%		38.4%	33.4%		34.7%
Less than 12	13.9%		14.6%	28.6%		27.5%
Between 13-19	20.9%		19.0%	16.6%		16.1%
20 or More	23.1%		22.7%	16.3%		16.1%
Did Not Answer/Don't Know	4.7%		5.4%	5.1%		5.7%
Number of Risk Factors		***			***	
Zero	88.3%		78.2%	91.4%		83.9%
One	10.5%		13.6%	8.0%		9.5%
Two or More	1.2%		8.3%	.6%		6.7%
Institutional Carnegie Type – First Institution		***			***	
Research, Doctoral	61.1%		51.9%	16.6%		24.3%
Masters, Comprehensive	28.6%		36.8%	24.8%		23.4%
Baccalaureate, Liberal Arts	9.1%		6.9%	50.1%		42.6%
Other	1.1%		3.6%	8.2%		8.4%
Institutional Selectivity – First Institution		***			***	
Least Selective	49.4%		59.8%	58.7%		53.0%
Selective	31.1%		19.8%	18.7%		14.5%
Very Selective	19.4%		20.4%	22.6%		32.4%

Source: National Center for Educational Statistics, BPS 1996:2001. *Note: Statistically Significant* *****p< .001, **p< .01, *p< .05**

Six-Year Graduation Rates

Approximately 60 percent of the students in the sample earned a bachelor's degree within six years. Results from a multivariate logistic regression model developed to predict baccalaureate degree attainment within six years at any institution[6] suggest that institutional grant aid is a positive predictor of graduating within six years, after controlling for student characteristics and institutional selectivity level. For the multivariate model, institutional grant aid was used as a derived categorical variable that measures the percentage of tuition and fees covered by institutional grants (the results of the regression analysis for students at public and private four-year colleges and universities are shown in the technical appendix).

Student Success at Public Four-Year Institutions

Slightly more than half (54%) of first-year postsecondary students who began at public four-year colleges and universities graduated within six years. For postsecondary students who initially started at public colleges and universities, the logistic regression results indicate that parents' educational attainment is a strong positive predictor of baccalaureate degree attainment within six years, while the number of risk factors students have is a negative predictor (risk factors include delaying postsecondary education more than one year after high school graduation, being financially independent, attending part-time, working full-time while enrolled, having children or dependents other than a spouse, being a single parent, and dropping out of high school).[7] As expected, institutional selectivity is a positive predictor of bachelor's degree attainment within six years; the more selective the college, the more likely a student will graduate.[8]

As expected, institutional selectivity is a positive predictor of bachelor's degree attainment within six years; the more selective the college, the more likely a student will graduate.

[6] Our original intent was to use a multinominal logit model to predit bachelor's degree attainment at the initial institution, bachelor's degree attainment at a different institution, and no degree attainment; however, descriptive analysis revealed that more than 90 percent of our sample of beginning postsecondary students at four-year colleges and universities earned a baccalaureate degree from their initial institution within six years. In other words, there was very little variation among baccalaureate degree recipients in terms of receiving a degree from their initial institution or from another institution (although some students received bachelor's degrees at more than one institution).

[7] For more information on these risk factors, see Horn and Berger (2004).

[8] We also modeled the SAT quartile rank of students; this variable is highly correlated with institutional selectivity and the statistical results are virtually identical.

Students who received need-based or merit-based institutional grants in their first year at public four-year institutions graduate within six years at significantly higher rates than do non-recipients. Almost 62 percent of postsecondary students who received a need-based institutional grant in their first year of college graduated within six years; similarly, 61 percent of postsecondary students who received a merit-based institutional grant in their first year of college graduated within six years. Additionally, logistic regression results indicate that the ratios of merit- and need-based grant aid to tuition are positive predictors of baccalaureate degree attainment within six years.

Table 7
Categorical Distribution of the Ratio of Institutional Grant Aid to Tuition and Fees for Postsecondary Students Who Began at Public Four-Year Colleges and Universities

Need-Based	Percentage	Merit-Based	Percentage
Up to 15%	69.6	Up to 19%	67.5
Between 15% and 49%	7.4	Between 20% and 48%	13.2
Between 50% and 99%	11.4	Between 49% and 99%	12.1
100% or more	11.6	100% or more	7.2
	N = 575		**N = 427**

Source: National Center for Educational Statistics, BPS 1996:2001.

Table 7 shows the categorical distribution of the ratio of institutional need- and merit-based grants to tuition and fees for institutional grant recipients who began at public colleges and universities.[9] About 14 percent of postsecondary students received a need-based institutional grant. More than two-thirds of these grants covered less than 15 percent of the recipients' tuition charges. About 12 percent received awards covering between 50 and 99 percent of tuition, while another 12 percent received awards equal to or greater than tuition.[10] The statistical model predicts that increasing the ratio of need-based grants to tuition by one category (for example, increasing a need-based grant amount so that a student could cover more than half of

[9] These values include postsecondary students who received either need-based or merit-based institutional grants or both.
[10] Need- and merit-based awards may be used to pay for any of the costs of attending college, including tuition, fees, room, board, books, supplies, or other miscellaneous expenses. Students who received grants greater than tuition very likely used the additional funds to pay for these other expenses.

tuition) will increase the probability of a student graduating within six years by 14 percent.

The effects of the ratio of merit-based institutional grants for students who initially enrolled at public colleges and universities are even greater than those for need-based aid. The model predicts that merit-based grants that account for more than half of tuition will increase the probability of a student graduating within six years by 22 percent. In this sample, about two-thirds of merit-based institutional grants covered less than 20 percent of the recipient's tuition. About 12 percent of merit-based grants covered between 49 and 99 percent of tuition, and 7 percent were equal to or greater than tuition.

Student Success at Private Four-Year Institutions

About 70 percent of postsecondary students who initially started at private colleges and universities graduated within six years. Regression results indicate that parental educational attainment was a strong positive predictor of baccalaureate degree attainment within six years. Institutional selectivity also was a positive predictor of successful college completion; the more selective the college, the more likely a student will graduate. However, unlike the statistical model for students who began at public four-year institutions, the students' income background and Hispanic ethnicity were statistically significant predictors of graduation within six years. Interestingly, students from families with higher incomes (as a percentage of federal poverty thresholds) were *less* likely to graduate within six years. Hispanic students were also less likely to graduate within six years. These results could be a function of the amount of institutional grant aid available to these students and whether they apply or qualify for additional grant financial aid from federal or state sources.

In terms of institutional grant aid, the ratio of need-based grant aid to tuition is a positive predictor of baccalaureate degree attainment within six years, but the ratio of merit-based grant aid to tuition is not statistically significant. The statistical model predicts that increasing the ratio of need-based grants to tuition by one category (for example, increasing a need-based grant amount so that it covers more than half of tuition) will

For students who began at public four-year institutions, the statistical model predicts that increasing need-based grants in the first year to cover more than half of tuition will increase the probability of a student graduating within six years by 14 percent.

increase the probability of a student graduating within six years by 16 percent. Indeed, 71 percent of students who received a need-based institutional grant award graduated within six years, which is slightly higher than the graduation rate for all students who began at private colleges and universities. But only 66 percent of students who received a merit-based institutional grant graduated within six years.

Indeed, 71 percent of students who received a need-based institutional grant graduated within six years. But only 66 percent of students who received a merit-based institutional grant graduated within six years.

The average ratio of institutional grant aid to tuition at private colleges and universities was about 31 percent for both need-based and merit-based grant recipients. However, the higher prices of private colleges may contribute to the statistical results because the percentage of tuition covered by institutional merit-based grants may leave a significant amount for students and families to pay. Moreover, merit-based institutional grant recipients are unlikely to qualify for federal and state need-based grants to fill the gap. Slightly more than one-fourth of postsecondary students who began at private colleges and universities received a merit-based institutional grant in their first year; as Table 8 below shows, 72 percent of merit-based institutional grant recipients received awards covering less than half of tuition. However, the amount of total grant aid received in the first year was lower for merit-grant recipients: students who received need-based grants received more than $8,000 in total average grant financial awards, which is significantly higher than the average of $6,900 for students who received merit-based awards.

Table 8
Categorical Distribution of the Ratio of Institutional Grant Aid to Tuition for Postsecondary Students Who Began at Private Four-Year Colleges and Universities

Need-Based	Percentage	Merit-Based	Percentage
Up to 15%	39.8	Up to 19%	40.2
Between 15% and 49%	35.7	Between 20% and 48%	31.7
Between 50% and 99%	22.2	Between 49% and 99%	25.6
100% or more	2.3	100% or more	2.5
	N = 1,139		**N = 624**

Source: National Center for Educational Statistics, BPS 1996:2001.

One of the limitations to the BPS database is that information on institutional grant aid is available only for the first year of college; therefore, the predictive validity of the multivariate models is tenuous. Many things can happen to students during the intervening years (i.e., years two through six) before graduation. For example, financial aid packages can be adjusted annually due to changes in income, changes in family circumstances such as additional siblings in college, and changes in colleges' available resources for grant aid. Because BPS does measure changes in the amounts of federal grant and loan aid for each year the student was enrolled in college, differences in annual *federal* financial aid among graduates and non-graduates are examined for students who received an institutional grant in the first year of college. In addition, differences in student characteristics among baccalaureate degree recipients and non-recipients are examined. The next section describes these findings.

Federal Financial Aid and Degree Completion

Federal grants and loans represent the largest component of financial aid. Table 9 on Page 26 illustrates the average Federal Pell Grant and Stafford Loan amounts for students who received institutional need-based grants in the first year of college; federal financial aid amounts are available for each year the student was enrolled. The general pattern indicates that for students who started at either public or private colleges and universities baccalaureate degree recipients received slightly *smaller* Pell Grants in the first-year of college and borrowed *larger* amounts of Stafford Subsidized and Unsubsidized Loans in the intervening years than did non-graduates.[11]

Among postsecondary students who began at public four-year institutions, baccalaureate degree recipients borrowed almost twice as much as non-graduates in the fourth and fifth

Among postsecondary students who began at public four-year institutions, baccalaureate degree recipents borrowed almost twice as much as non-graduates in the fourth and fifth years of college.

[11] Stafford Loan limits rise for each year of postsecondary education. Currently, under the Stafford Subsidized Loan program, the maximum amount undergraduates can borrow rises from $2,625 for first-year students to $3,500 for second-year students. Third and fourth year students can borrow up to $5,500 each year. The cumulative maximum is $23,000 in Stafford Subsidized Loans. On July 1, 2007, the maximum borrowing amount rises to $3,500 for first-year students and to $4,500 for second-year undergraduates. The $23,000 cumulative maximum amount will not change.

Table 9
Average Federal Grant and Loan Amounts for Institutional Need-Based Grants Recipients, by Year and Bachelor's Degree Attainment Status

Type and Year of Federal Aid	Public Four-Year		Private Four-Year	
	Bachelor's Degree Recipient	Did Not Graduate	Bachelor's Degree Recipient	Did Not Graduate
Pell Grant				
1995-96	$304*	$438*	$171***	$317***
1996-97	$262	$341	$172*	$248*
1997-98	$306	$354	$189	$147
1998-99	$360	$361	$185	$152
1999-2000	$276	$331	$70***	$212***
Stafford Subsidized Loan				
1995-96	$599	$655	$1,276	$1,220
1996-97	$871	$835	$1,605***	$862***
1997-98	$1,132	$875	$2,153***	$709***
1998-99	$1,481***	$824***	$2,211***	$620***
1999-2000	$1,297**	$694**	$930*	$632*
Stafford Unsubsidized Loan				
1995-96	$237	$310	$334	$368
1996-97	$291	$362	$391	$337
1997-98	$519**	$205**	$713***	$298***
1998-99	$736**	$329**	$794***	$200***
1999-2000	$1,004***	$370***	$676**	$267**
	N = 356	**N = 221**	**N = 813**	**N = 326**

Source: National Center for Educational Statistics, BPS 1996:2001.

Note: Statistically Significant *****p< .001, **p< .01, *p< .05**

years of college. For postsecondary students who began at private four-year colleges and universities, bachelor's degree recipients borrowed twice as much as non-graduates in the second year of attendance, and three times as much in the third and fourth years. These data raise an important question about the amount of institutional grant aid awarded to students after the first year of college: did students borrow more in subsequent years because colleges decreased institutional aid in order to provide larger grants to new entering students? Or, did students borrow more money because of the larger annual loan limits in subsequent years of college?

Among postsecondary students who started at public four-year colleges and universities and received a merit-based institutional grant, baccalaureate degree recipients generally received slightly higher Pell Grants than non-graduates in all but the first-year of college; however, the differences were not statistically different except in the fourth year. In addition, bachelor's degree recipients borrowed significantly larger amounts of Stafford Subsidized and Unsubsidized Loans than non-graduates in the fourth and fifth years of college (see Table 10 on page 28). These data further raise the question of the role of student loans in paying for college. If students who graduate within six years are more willing to borrow larger amounts in government loans during the final two years of college, does a hesitancy or unwillingness to borrow more to pay for college after the first year negatively affect graduation within six years?

Among postsecondary students who started at private four-year colleges and universities and received a merit-based institutional grant, the general pattern was for baccalaureate degree recipients to receive slightly smaller Pell Grants than non-graduates in the first two years of college and to borrow much larger amounts of subsidized and unsubsidized loans than non-graduates in all but the first year. In fact, bachelor's degree recipients who received merit-based institutional grants in the first year borrowed more than three times as much as non-graduates during the third and fourth years of college. These findings also raise the question about whether students are hesitant to borrow more for college during subsequent years, which may contribute to their lower six-year graduation rates. Like the pattern for institutional grant recipients at public colleges and universities, baccalaureate degree recipients who began at private institutions and received an institutional merit grant in their first year took on much larger debt levels during college than did non-graduates.

These data raise a question about the role of student loans in paying for college — does a hesitancy or unwillingness to borrow more after the first year negatively affect graduation within six years?

Table 10

Average Federal Grant and Loan Amounts for Institutional Merit-Based Grants Recipients, by Year and Bachelor's Degree Attainment Status

Type and Year of Federal Aid	Public Four-Year		Private Four-Year	
	Bachelor's Degree Recipient	Did Not Graduate	Bachelor's Degree Recipient	Did Not Graduate
Pell Grant				
1995-96	$236	$276	$190**	$335**
1996-97	$249	$164	$185*	$266*
1997-98	$263	$214	$192	$181
1998-99	$354**	$188**	$205	$157
1999-2000	$288	$183	$94	$152
Stafford Subsidized Loan				
1995-96	$599	$679	$1,190	$1,378
1996-97	$793	$692	$1,451***	$943***
1997-98	$1,072	$848	$2,015***	$652***
1998-99	$1,252**	$770**	$2,039***	$613***
1999-2000	$1,122***	$517**	$1,353***	$482***
Stafford Unsubsidized Loan				
1995-96	$333*	$174*	$350	$477
1996-97	$387	$217	$446	$339
1997-98	$640**	$246**	$787*	$475*
1998-99	$769**	$363**	$887***	$312***
1999-2000	$709**	$295***	$835*	$347*
	N = 260	**N = 167**	**N = 412**	**N = 214**

Source: National Center for Educational Statistics, BPS 1996:2001.

Note: Statistically Significant *****p< .001, **p< .01, *p< .05**

CONCLUSION: More Evidence is Needed on the Role of Insitutional Grant Aid in Baccalaureate Degree Attainment

This analysis on the effect of institutional grant financial aid on baccalaureate degree attainment within six years suggests that postsecondary students who begin at public four-year colleges and universities and receive need- or merit-based institutional grants in their first year of study are more likely to graduate within six years than those who do not receive such aid. Similarly, undergraduates who begin at private four-year colleges and universities and receive need-based institutional grants in the first year are also more likely to graduate within six years than those who do not receive such aid. However, merit-based institutional grants did *not* have a statistically significant effect on graduation within six years for students who began at private four-year institutions. In the simplest terms, need- and merit-based institutional aid matters for students who start at public colleges and universities; for students who start at private colleges and universities, need-based institutional grants matter. In short, the findings suggest that institutional need-based grants are an important factor of college success for low- and moderate-income students.

One reason why institutional grant recipients at public colleges and universities are more likely to graduate within six years could be that between 84 percent and 88 percent of institutional grant recipients have zero risk factors. That is, they are much less likely than non-recipients to have any of the factors that negatively influence degree success in college. Additionally, for public four-year institutions, very selective or selective institutions are more likely to award institutional grant aid. These public institutions tend to have a history of graduating students at higher rates than do less selective public colleges and universities.

A second reason could be that larger grant amounts in the first year help students work fewer hours while enrolled so they are able to focus on their academic performance. About 42 percent of the beginning students who received institutional need-based grant aid did not work any hours during the first year of college, and only 18 percent worked more than 20 hours per week. There was not a statistically significant difference in the distribution of the number of hours worked weekly between

merit-based grant recipients and non-recipients at public colleges and universities.

A third reason recipients of public-college institutional grant aid are more likely to graduate within six years could be a willingness to borrow larger amounts in subsequent years. In fact, among institutional grant recipients at public colleges and universities, those who graduated within six years borrowed much larger amounts than non-graduates. Baccalaureate degree recipients who received institutional grants borrowed more than $9,500 cumulative in Stafford Loans compared to about $6,100 cumulative for non-graduates (see Table 11). These data suggest that a hesitancy to borrow more in subsequent years of college may contribute to undergraduates' not completing a baccalaureate degree within six years.

Table 11
Selected Average Aid Amounts in the First Year, and Cumulative Stafford Loan Borrowing Among Public Postsecondary Students Who Received Institutional Grant Aid

	Graduated Within Six Years	Did Not Graduate
Public Four-Year		
Average Total Aid – Year 1	$6,476	$5,564
Average Total Grants – Year 1	$4,397	$3,651
Cumulative Stafford Loan	$9,559	$6,939

Source: National Center for Educational Statistics, BPS 1996:2001.

Institutional grant recipients at public colleges and universities who graduated within six years received almost $1,000 more than non-graduates in total aid in their first year of college, and 82 percent of this difference was in the form of grants. Because BPS data do not include information on institutional grant aid after the first year of college, it remains an open question if the amount of institutional grant aid increased, remained stable, or decreased in subsequent years of college attendance. That is, to pay for college after the first year, students may have to choose either increased debt or lower total financial aid awards; this choice could reduce the rate of graduation within six years, especially for financially needy students.

Institutional need-based grant aid at private colleges and universities also positively affects graduation rates. Similar to public four-year institutions, almost 90 percent of need-based institutional grant recipients who started at private four-year institutions had zero risk factors. Undergraduate admissions selectivity does not seem to affect the receipt of need-based grants for postsecondary students who begin at private colleges and universities (although baccalaureate liberal arts colleges were more likely to award need-based grants). Thus, awarding institutional need-based grants in the first year could improve graduation rates at less selective colleges.

At the same time, receiving merit-based grants in the first year did *not* affect graduation within six years among postsecondary students who began at private four-year institutions. This counterintuitive finding could be the result of the least selective colleges' being more likely to award merit-based grant aid in the first year; however, more than 91 percent of merit aid recipients did not have any risk factors. The multivariate model indicates that family income and Hispanic ethnicity are negative predictors of graduation within six years. Merit-based institutional grant recipients who start at private four-year colleges are more likely to be from families with incomes below 200% of poverty; however, this difference was not statistically significant.

The more likely explanation for why merit-based institutional grant aid in the first year of college did not positively influence graduation within six years is that the value of the merit grant simply did not cover a significant amount of the total charges to students. Average total aid and average total grants at private colleges and universities for merit-based institutional grant recipients were not statistically different between postsecondary students who graduated within six years and those who did not graduate; however, the ratio of total grant aid to total price and the ratio of total grant aid to total aid in the first year were statistically different between graduates and non-graduates. Specifically, total grant aid represented 55 percent of all aid and covered 31 percent of the total price for institutional merit-based grant recipients who graduated within six years; in contrast, total grant aid represented 45 percent of all aid and covered

Institutional grant recipients at public colleges and universities who graduated within six years received almost $1,000 more than non-graduates in total aid in their first year of college – 82 percent of this difference was in the form of grants.

only 26 percent of the total price in the first year for non-graduates (see Table 12). Moreover, postsecondary students who received institutional merit-based grants in the first year and who graduated within six years borrowed almost twice as much in cumulative Stafford Loans ($13,531) than merit-based grant recipients who did not graduate ($6,797).

Table 12
Selected Average Aid Amounts and Ratio of Grants to Aid and Grants to Cost in the First Year, and Cumulative Stafford Loan Borrowing Among Private Postsecondary Students Who Received Institutional Merit-Based Grants

	Graduated Within Six Years	Did Not Graduate
Private Four-Year		
Average Total Aid – Year 1	$11,728	$11,166
Average Total Grants – Year 1	$8,022	$7,519
Ratio of Grant Aid to Total Price	30.9%	26.1%
Ratio of Grant Aid to Total Aid	54.7%	44.8%
Cumulative Stafford Loan	$13,532	$6,797

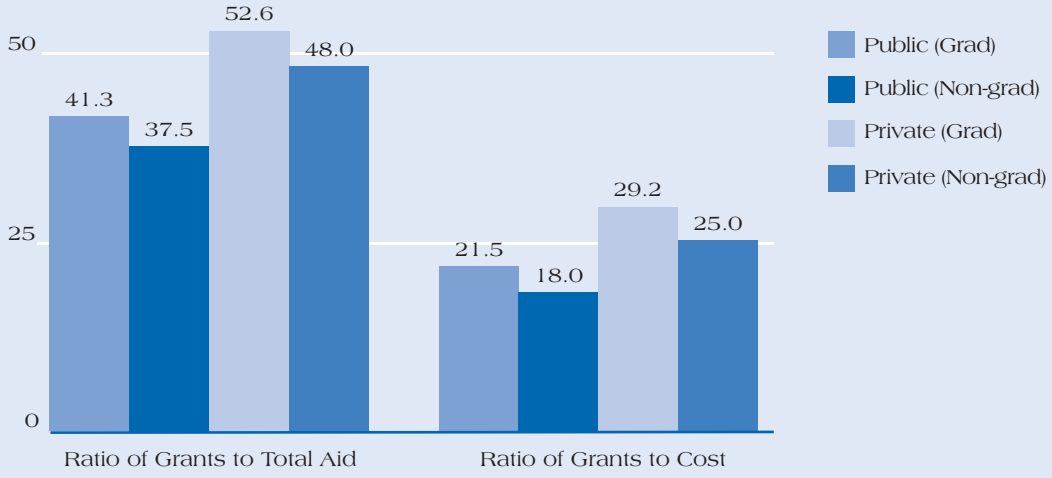
Source: National Center for Educational Statistics, BPS 1996:2001.

Public Policy Implications

The effect of institutional grant aid on baccalaureate degree attainment and the subsequent differences in borrowing between graduates and non-graduates raises an important policy issue about the way financial aid is awarded to students. This analysis suggests that larger grants in the first year of college — especially need-based institutional grants — can increase the likelihood of students' graduating within six years. As Figure 1 on Page 33 illustrates, the proportion of total cost covered by grants is larger in the first year for postsecondary students who graduate within six years than for those who do not. Moreover, for students who begin at private institutions, the proportion of aid in the form of grants in the first year among institutional grant recipients is significantly larger for graduates. (Although the ratio of total aid to tuition and fees was also higher for graduates than for non-graduates among undergraduates who begin at public colleges and universities, the difference was not statistically significant).

Figure 1

Ratio of Grants to Total Aid and Grants to Cost in the First Year for Postsecondary Students Who Received Institutional Grants

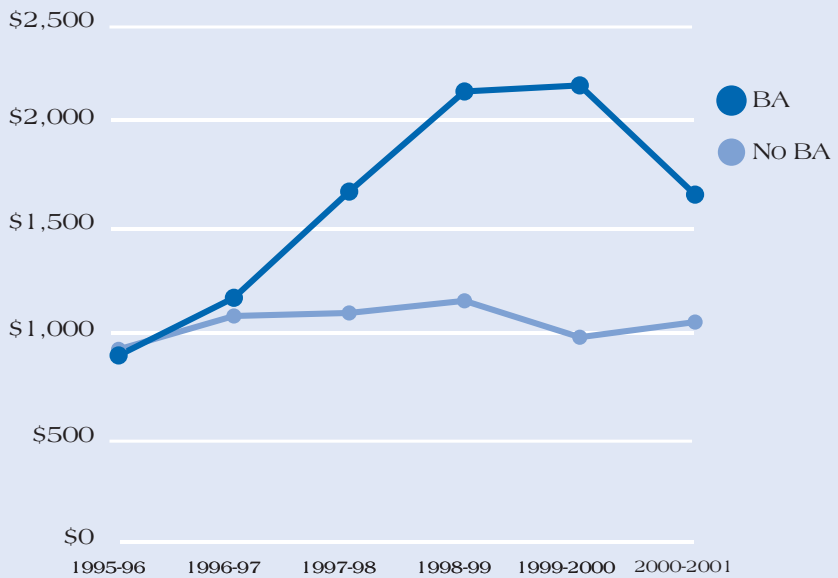


Source: National Center for Educational Statistics, BPS 1996:2001.
T-test significant p<.05 execpt for grant to aid ratio public.

At the same time, these data indicate that undergraduates who earn bachelor's degrees within six years are borrowing significantly more Stafford Subsidized and Unsubsidized Loans in subsequent years of college. As Figures 2 below and 3 on Page 34 show, the average annual amount borrowed in the Subsidized and Unsubsidized Stafford Loan programs after the

Figure 2

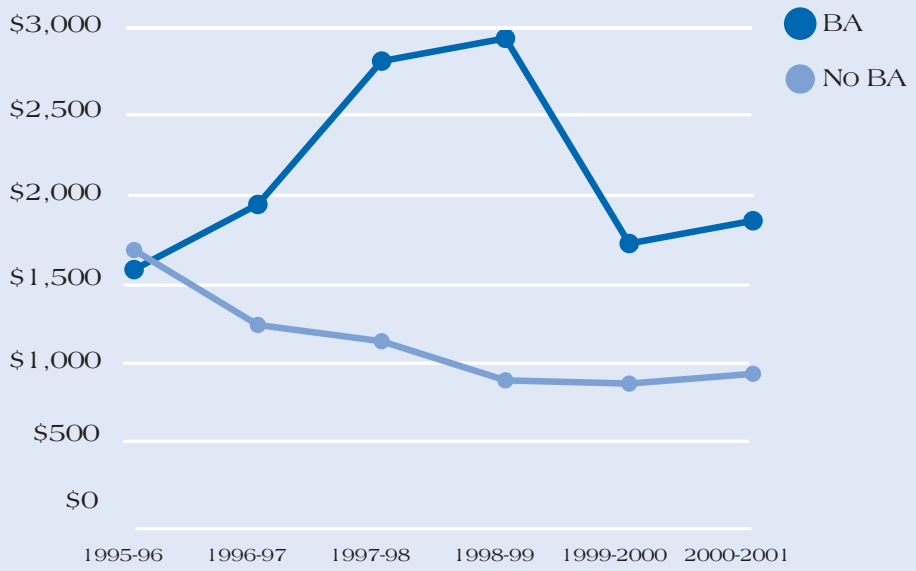
Average Annual Amounts of Stafford Subsidized and Unsubsidized Loans Borrowed by Institutional Grant Recipients at Public Four-Year Institutions, 1995-96 Through 2000-01



first two years of college (after the first year at private colleges) is much larger for students who graduate within six years. This pattern suggests that colleges are taking advantage of increased loan limits for students who remain enrolled after the first year, thereby encouraging students who want to finish within six years to borrow higher amounts.

Figure 3

Average Annual Amounts of Stafford Subsidized and Unsubsidized Loans Borrowed by Institutional Grant Recipients at Private Four-Year Institutions, 1995-96 Through 2000-01



These descriptive results underscore a growing concern about the reliance on student loans to pay for college, especially after the first year: do higher loan limits and, thus, the need to borrow more after the first year of college actually reduce the likelihood of a student graduating within six years? That is, students who did not graduate within six years may have taken fewer classes or worked more hours in order to avoid borrowing higher amounts after the first year. Working more hours while enrolled and taking fewer classes can hinder timely degree completion.

In conclusion, this analysis indicates that the percentage of tuition and fees (as well as the total price of college) covered by grant financial aid in the first year has an important effect on graduation within six years. Notwithstanding the inequities implicit in rewarding institutional aid by traditional definitions of merit, it appears that improving college graduation rates is

less about the type of institutional grant awarded (need-based or merit-based) and more about the size of the institutional grant relative to the prices students pay for college. Put simply, one strategy to increase the percentage of students who earn a bachelor's degree within six years is to provide larger grants in the first year of college. The amount of first-year institutional grants should be large enough when combined with other grant aid to cover at least half of tuition and fees and to pay between 20 percent and 30 percent of the total price of attendance.

In addition, this analysis indicates that a willingness or hesitancy to borrow more for college after the first year may affect graduation rates. The reliance on student loans can place undergraduates in the difficult position of choosing increased debt or lower financial aid amounts in order to complete a bachelor's degree in a timely manner. In other words, it is possible that the availability of higher loan limits in subsequent years encourages institutions to package relatively less grant aid after the first year, and this institutional policy may influence some students' enrollment decisions in the second and following years of college.

These conclusions should raise concerns about federal policymakers' ongoing emphasis on increasing student loan levels for undergraduates and about the pattern of colleges and universities awarding more institutional grant aid according to merit criteria. Given an emerging national interest in improving graduation rates, educators, researchers, private foundations, and policymakers should consider how to develop more definitive evidence on the impact of institutional grant aid in each year of college. Such evidence is necessary for financial aid administrators and other college leaders to develop and implement more effective strategies for financial aid packaging and thereby increase the number of students who graduate within six years.

The reliance on student loans can place undergraduates in the difficult position of choosing increased debt or lower financial aid amounts in order to complete a bachelor's degree in a timely manner.

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TECHNICAL APPENDIX – Logistic Regression Results for Students Who Began at Public and Private Four-Year Colleges and Universities

Public Four-Year Colleges and Universities

Variable	Coefficient	Standard Error	Exp (B)
Parental educational attainment***	.415	.041	1.514
Poverty threshold	-.014	.031	.986
Gender (male)	.003	.070	1.003
Black	-.162	.113	.851
Hispanic	-.014	.120	.986
Asian	.008	.150	1.008
Number of risk factors***	-.241	.057	.786
Institutional selectivity***	.644	.049	1.905
Ratio of need-based institutional grant to tuition (categorical)*	.129	.056	1.137
Ratio of merit-based institutional grant to tuition (categorical)**	.202	.070	1.224
Dummy control for received both need- and merit-based institutional grant	-.190	.340	.827
Constant***	-1.247	.127	.287

-2 log likelihood = 4676.320 **N = 3,981**
Nagelkerke R^2 = .156
Predicted correctly = 65%
*** p < .001
** p < .01
* p < .05

Private Four-Year Colleges and Universities

Variable	Coefficient	Standard Error	Exp (B)
Parental educational attainment***	.403	.059	1.496
Poverty threshold*	-.096	.043	.909
Gender (male)	-.050	.101	.951
Black	-.089	.172	.915
Hispanic*	-.348	.162	.706
Asian	-.024	.212	.976
Number of risk factors	-.172	.087	.842
Institutional selectivity***	.615	.064	1.850
Ratio of need-based institutional grant to tuition (categorical)**	.148	.052	1.160
Ratio of merit-based institutional grant to tuition (categorical)	-.013	.065	.987
Dummy control for received both need- and merit-based institutional grant	-.235	.197	.791
Constant*	-.415	.186	.660

-2 log likelihood = 2378.043 **N = 2,563**
Nagelkerke R^2 = .152
Predicted correctly = 71%
*** p < .001
** p < .01
* p < .05

NOTE: weight-adjusted for nonresponse bias but not for stratified sample design

ABOUT NASFAA

The National Association of Student Financial Aid Administrators (NASFAA) is the primary professional association representing the student financial aid interests of institutions of postsecondary education in the United States. The principal goal of the Association is to promote maximum funding and effective delivery of financial assistance to needy students.

NASFAA is the only national association with a primary focus on student aid legislation, regulatory analysis, and professional development for financial aid administrators. NASFAA's products and services are used by nearly all institutions of postsecondary education, and NASFAA's training programs, both independently and in cooperation with the U.S. Department of Education, have reached virtually all financial aid personnel employed by those institutions.

Founded in 1966 as an outgrowth of three regional professional associations, NASFAA was incorporated in 1973 as a nonprofit corporation in the District of Columbia. NASFAA is the largest institutional membership-based postsecondary education association in Washington, DC, representing nearly 2,600 institutions of postsecondary education as well as others with an interest in the advancement of student aid. No Washington-based higher education association represents more campus members than NASFAA. More than 12,000 financial aid administrators at member institutions nationwide benefit from information and professional services provided by NASFAA.

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