Who Benefits from Tuition Discounts at Public Universities?

By Nicholas W. Hillman

Nicholas W. Hillman is assistant professor of educational leadership and policy studies at the University of Utah.

This article uses data from the 2004 National Postsecondary Student Aid Study to provide insight about the range of tuition discounting practices at public institutions. Specifically, it examines the characteristics of students who receive tuition discounts from public four-year colleges and universities. A binary logistic regression is applied to all students enrolled in a public four-year institution in 2003-04 to determine which students were most likely to receive a tuition discount. Descriptive statistics show how tuition discount rates differ according to student characteristics such as academic level, race, residency, family income, and institution type. This study examines national patterns and also makes use of the 12-state representative samples available in NPSAS:04. Findings demonstrate that low-income students, minorities, freshmen, and non-resident students are the groups most likely to receive tuition discounts. Based on the logistic regression results, it appears that public colleges are using tuition discounts in a way that increases opportunity for traditionally underrepresented students, and as an incentive for freshmen to enroll in college. However, while low-income students are more likely to receive tuition discounts, their discount rate is equal to or less than their upper-income peers.

State and federal government agencies have traditionally taken the lead in providing grant aid to students attending public colleges and universities. Since state and federal expenditures for higher education have failed to keep pace with rising tuition costs and student enrollment levels (Toutkoushian, 2001; Weerts & Ronca, 2006), public colleges have provided students with grants from their own funds. This was not the case 20 years ago, when it was less common for public colleges to provide institutional grants to students (Heller, 2000). Given the tenuous support from state and federal sources, public colleges have taken it upon themselves to become an additional source of aid for students, but not much is known about the ways in which public colleges spend institutional aid (College Board, 2006).

This paper utilizes data from the 2004 National Postsecondary Student Aid Study (NPSAS:04), to examine the characteristics of students who receive tuition discounts from public four-year colleges and universities. This analysis selects all students who were enrolled at public four-year institutions in 2003-04 and applies a binary logistic regression to determine which of those students were most likely to receive a tuition discount. Additionally, it utilizes descriptive statistics such as means, percentages, and ranges to show how tuition discount rates differ based upon various student characteristics. This study provides information on national patterns, but it also makes use of the 12-state representative samples available in NPSAS:04. Enrollment management personnel, financial aid directors, higher education policy researchers, and campus planning officials will find these results informative as this paper provides insight about the range of tuition discounting practices at public institutions.

Review of the Literature

The majority of tuition discounting research focuses on private four-year institutions; few studies examine the practice at public colleges and universities (Redd, 2000; Lapovsky & Hubbell, 2001; College Board, 2006). Tuition discounting has a long history at private institutions, dating back to the 19th century when some colleges offered remissions to help "worthy" students pay for college (Wilkinson, 2005). Private colleges rely heavily on tuition revenue as a primary source of income, so discounting strategies are more common and have a longer track record at private institutions. Since tuition discounting at public institutions is a practice with a relatively short history (Heller, 2000), the body of research on the range of practices is not extensive.

Over the past several years, state and federal spending on public higher education has not kept pace with the rising costs and increased number of students enrolling (Toutkoushian, 2001, Weerts & Ronca, 2006), causing public colleges to become increasingly reliant on other sources of revenue including tuition. During this same period, federal and state need-based financial aid programs have been placed in a precarious position. The purchasing power of the Federal Pell Grant has steadily declined since the 1980's (College Board, 2007; St. John, 2005) and states have invested heavily in merit-based (rather than need-based) state grant programs (NASSGAP, 2006; Heller, 2002). These external circumstances have put pressure on public institutions to use tuition discounts as a way to help leverage aid for students with financial need. Institutional grant aid is often considered the "financial aid of last resort" (Allan, 1999a), so public institutions play an immensely important role in leveraging aid to students who need it most in order to help them succeed in college.

In addition to providing need-based aid, institutions use merit-based discounts as an enrollment strategy to recruit a desired mix of students based on academic or athletic talent, residency status, or race and ethnicity (Allan, 1999b; Hossler, 2000; DesJardins & Bell, 2006). As colleges compete for talented students to increase prestige and college rankings, they must weigh the opportunity costs and ethics of choosing merit over need.

Institutional aid, whether it is need-based or merit-based, plays an important role in college choice and student success. Students choose to attend college based on iterative steps of information-gathering, and after weighing the costs and benefits, will enroll in the institution that they perceive as the best fit (Hossler, Schmit, & Vesper, 1999). Tuition discounting, therefore, becomes a very powerful recruitment tool, especially for price-sensitive students who might not enroll if the "sticker price" is beyond their ability to pay. Studies have found financial aid to have a significant impact on student enrollment decisions (Heller, 1997; St. John, 1996). Students who receive scholarships and grants increase their likelihood of staying in college, so it behooves public institutions to utilize tuition discounts in ways that maximize students' likelihood of continuing their enrollment.

During the late 1990's and early 2000's, several studies and national reports focused on tuition discounting practices (Lee & Clery, 1997; Allan, 1999; Heller, 2000; Redd, 2000; Lapovsky & Hubbell, 2001, Davis, 2003), but there has been little research on the subject in recent years. In 2006, The College Board published a report titled Tuition Discounting: Not Just a Private Practice, signaling a renewed interest in the topic. Not only did this report bring tuition discounting back on the research agenda, it specifically drew attention to the need for gaining a better understanding of the practice at public institutions.

Data & Methods

This study selects a national sample (n=31,542) of undergraduate students from the 2004 National Postsecondary Student Aid Study (NPSAS:04) and describes which students are most likely to receive tuition discounts from public four-year colleges and universities. It also identifies the differences in tuition discount rates depending on certain student characteristics. My primary research questions are as follows: At public four-year colleges and universities, to what extent do tuition discount rates differ based upon student characteristics such as socio-economic background, college experience, and college choice? Additionally, which students are most likely to receive discounts from public four-year institutions?

Variables were selected based on their ability to serve as proxies for socio-economic background, college experience, and college choice. St. John's workable models approach (1992) advocates for analyzing student-level data that links sociological and economic data to higher education theory and research. Therefore, I ensured that student socio-economic background factors such as family income level gender, and parents' level of education were included in the analysis. Studies on college choice (St. John, Paulson, & Starkey, 1996; Hossler, Braxton, & Coopersmith, 1989) indicate that proximity and institutional type, along with high school preparation, are significant factors for influencing enrollment decisions. For these reasons, this study included students' residency status, Carnegie classification of their college, and type of high school as factors that influence college choice. Student persistence research (Tinto, 1993; Bean & Eaton, 2000) and studies on enrollment management (Hossler & Bean, 1990; Hossler, 2000) indicate that academic integration is a significant predictor of student success, so the study uses college grade point average, choice of major, dependency status, and enrollment status as factors relevant to the use of institutional aid in enrollment management.

For each variable, the average discount rate is calculated as described in the following formula (College Board, 2006):

$$\frac{\textbf{Average Institutional Grant Per Student}}{\textbf{Average Tuition and Fee}}$$

The terms "tuition discount" and "institutional grant" are used interchangeably in this article because they are both measuring the same outcome. For example, a 15 percent discount rate means that for every $1,000 charged in tuition, the institution provides $150 in institutional grant aid.

In addition to the calculating students' average discount rates descriptive statistics are provided (see Table A) of awards to all students including the percentage of students receiving institutional grants. These descriptive statistics provide information about national discounting trends, but NPSAS:04 also includes state-level data in which 12 states (California, Connecticut, Delaware, Georgia, Illinois, Indiana, Minnesota, Nebraska, New York, Oregon, Tennessee, and Texas) have robust representative samples. These descriptive statistics will answer my first research question about the extent to which tuition discount rates differ depending on student characteristics.

In order to answer the second research question about the likelihood of receiving discounts at public four-year institutions, I chose to utilize binary logistic regression where the dependent variable is whether a student received a tuition discount (1) or did not receive a discount (0). Logistic regression is an

appropriate technique to use when studying categorical outcomes (Long, 1997; Peng, So, Stage, St John, 2002), whereas the binary logistic regression formula is:

$$ln\left(\frac{P}{1\text{-}P}\right) = \propto + ß_1x_2 + ß_1x_2 + \ldots ß_k n_k$$

In this formula, *P* is the probability of a student receiving a tuition discount, $ln\left(\frac{P}{1\text{-}P}\right)$ is the natural logarithm of the odds of *P*, $\propto$ is the Y intercept, ß is the slope parameter, and x_k represents each predictor variable.

The logistic regression formula provides odds ratios for each predictor variable. For example, when a predictor variable's odds ratio is greater than one, then groups of individuals represented by that variable are more likely (than the reference group) to receive a tuition discount. If a predictor variable's odds ratio is less than one, then the opposite is true; when a predictor variable's odds ratio is less than one, then groups are less likely (than the reference group) to receive a tuition discount.

Results

In 2003-04, the national average discount rate for students attending public four-year colleges and universities in the U.S. was 14.3 percent. This finding corresponds with a recent analysis by the College Board (2006) that estimated the average discount rate to be 15.3 percent when using a different database that used institutions as the unit of measure. Approximately 1.19 million students received tuition discounts from public four-year colleges in 2003-04, accounting for 20 percent of the student body. At private four-year colleges, approximately 1.27 million students, or 50 percent of the private sector student body, received discounts in 2003-04. It is evident that private institutions engage in discounting practices to a greater extent than the public sector, but in raw number of students (1.19 and 1.27 million respectively), there is not much difference in the total number of students receiving discounts. When examining the three primary sources of student grant aid (federal, state, and institutional), tuition discounts at public four-year colleges accounted for $3.5 billion in 2003-04, which is $1.1 billion more than the total amount provided by state grant programs. Federal grant aid accounted for approximately $4.3 billion, showing that students benefit most from federal grants, then institutional grants, and lastly state grants.

Considering the scope of the tuition discounting practice at public four-year colleges, researchers and policymakers do not have much data about the students who receive these awards. Tuition and fees is one of the fastest-growing sources of revenue for public institutions, and that access and affordability are among the most important higher education policy discussions, making it critical for these stakeholders to know who is benefitting the most from redistributing funds via discounts.

Class Level. Most institutional aid is awarded to students early in their academic careers, rather than later; 23.4 percent of freshmen received tuition discounts, while 21.1 percent of seniors and 15.3 percent of fifth-year seniors received tuition discounts. Using the logistic regression model, it is evident that as students progress through public four-year colleges, they are significantly less likely to receive tuition discounts. Seniors, junior, and sophomores all have statistically significant (α<.001) odds-ratios that are less than one, indicating that they are less likely than freshmen to receive tuition discounts. This confirms the descriptive statistics that colleges are front-loading tuition

discounts to freshmen and are less likely to award discounts to students as they progress in college.

Freshmen aren't only more likely to receive discounts than other students, but their average discount rate is higher than that of any other class. The average discount rate for freshmen is 16.2 percent discount, while seniors receive a 13.4 percent discount and fifth-year seniors receive a 7.9 percent discount rate.

Residency Status. Approximately 30.4 percent of non-resident students receive tuition discounts at public four-year colleges, as opposed to the 19.7 percent of in-state residents. Students who go out-of-state to attend college are significantly more likely to receive tuition discounts than their in-state peers. As the regression results indicate, non-residents have odds of receiving tuition discounts that are1.717 times higher than in-state. While non-resident are more likely to receive discounts, it is also important to note that they receive greater discount rates than in-state students (16.6 and 13.6 percent, respectively). Although the difference in the average discount rate for residents and non-residents is only three percentage points, the magnitude of that small difference is large. For example, a one-percent increase to the non-resident tuition discount rate would cost an institution $100.13, while an equivalent percentage increase for resident students would only cost $35.80.

National discount rates are useful in setting a benchmark for institutions, but it is important to note that these discount rates vary widely among the 12 states in which NPSAS:04 provides representative samples (see Tables 1 and 2). Public four-year colleges in states with large grant programs (New York, Georgia, Indiana, Minnesota, and Tennessee) tend to provide considerably smaller discounts than the national average. Fewer than 20 percent of in-state students in these states receive tuition discounts, and their rates are considerably lower than the national average.

Race. Minority students are more likely than White students to receive tuition discounts at public four-year institutions. Approximately 19.8 percent of White students receive tuition discounts, while Black, Asian, and Hispanic students are the most likely to receive discounts (22.0, 26.0, and 23.3 percent respectively). Students' race/ethnicity is one characteristic where we see the widest range of tuition discounting practices. The average discount rate ranges from a low of 12.3 percent to a high of 21.0 percent, which is among the largest ranges of all variables in this study. Although Hispanic students are 1.2 times more likely than White students to receive tuition discounts, their average discount rates (12.6 percent) are smaller than White students' rates (13.3 percent).

Family Income. As family adjusted gross income levels increase, the likelihood of receiving tuition discounts decrease, holding all other variables constant. When compared to middle-income families (AGI $50,000 - $70,000), students whose income is below $30,000 are 1.896 times more likely to receive tuition discounts. That likelihood ratio steadily decreases as we move higher in the income categories; students from the highest income group (AGI greater than $100,000) have an odds ratio of 0.571, which means they are nearly two times less likely than middle-income students to receive tuition discounts.

Although low-income students are the most likely to receive tuition discounts at public four-year institutions, their average discount rates are actually not significantly different than their upper-income peers. Students whose families earn between $70,000 and $100,000 receive an average discount of 15.1 percent, while the lowest income students only receive a 14.7 percent discount rate.

Middle- and upper-income students receive almost the same (and sometimes even greater) discount rates as low-income students, indicating that colleges are spending institutional funds on students who do not necessarily have financial need. This trend is a significant departure from the original intent of institutional aid (Redd, 2000), as colleges originally utilized discounts as a means for helping low-income students cover unmet financial need.

In California, Minnesota, and Texas, public four-year colleges award greater tuition discounts to lower income students than to higher income students. The opposite story is true in Indiana, Nebraska, and Tennessee, where higher income students receive greater discount rates than lower income students. For example, low-income students in Texas receive a 15 percent tuition discount, while high-income students only receive a 5 percent discount. In Nebraska, however, the highest income students receive a 40 percent discount, while low-income students only receive a 20 percent discount.

Institutional Type. It is important not to overlook the differences among "types" of public four-year colleges and universities. Research-intensive and doctoral degree granting institutions have different missions than regional and open-access institutions or teaching colleges. Therefore, it is necessary to differentiate discount rates for students attending different types of public four-year institutions. Students attending master's and baccalaureate degree granting institutions are significantly less likely (odds ratio = 0.73) to receive tuition discounts than those attending doctoral and research institutions. Students attending doctoral and research universities receive average discounts of 16.3 percent, while students at master's and baccalaureate institutions receive average discounts of 11.3 percent.

Summary and Discussion

This analysis provides a broad overview of tuition discounting practices at public four-year colleges and universities and shares information about the profile of students who receive these awards. This study found that low-income students, minorities, freshmen, and non-resident students were the groups most likely to receive tuition discounts. Based on the logistic regression results, it appears that public colleges are utilizing tuition discounts in such a way that increases opportunity for traditionally underrepresented students, and as an incentive for freshmen to enroll in college.

However, when examining the discount rates for various types of students, institutional commitment to increasing opportunity becomes less evident, particularly for low-income and minority students. Although Hispanic students are more likely to receive discounts from public colleges, their average discount rate is considerably lower than the national average. A similar story holds true with regard to low-income students; they are more likely to receive discounts, but their average awards are not higher than other students' awards.

While low-income students are more likely to receive tuition discounts, their discount rate is equal to or less than their upper-income peers. In some states, discounts received by low-income students are nearly half as large as those received by their upper-income classmates, signaling an imbalance in social justice and an inequitable distribution of public funds. Tuition discounting can be a strong predictor of student retention and it has become a useful tool for helping price-sensitive students succeed in college. However, when discounts are awarded to students who already have a high ability to pay, institutions fail to capitalize on the opportunity to maximize student success for needy students.

Public universities are utilizing tuition discounts to balance the often-competing institutional objectives of increasing opportunity while simultaneously increasing prestige. They are pressured to fill the financial gap left from the declining purchasing power of the Pell Grant and the tenuous state support for funding, while at the same time they must compete with other institutions in order to improve institutional prestige and reputation. Given that context, tuition discounting practices straddle a delicate line that requires financial aid administrators and planners to determine "who" should receive the institution's limited financial resources.

Additionally, further study should examine the complex relationship of grant aid practices to understand the distributional relationship between federal, state, and institutional grant aid. Georgia serves as a good example of how to conceptualize such a study. Since its state grant program provides financial support to many resident students, Georgia colleges seem to have an incentive to discount tuition for non-residents, thus giving Georgia colleges greater flexibility for crafting a class. This study does not provide enough detail about the fiscal federalism of grant aid, but future studies of tuition discounting in the public sector should address these intended and unintended influence of external aid. This study was designed to be descriptive in nature as an attempt to fill a gap in the body of research on tuition discounting practices. Not only is there a need to gain a better understanding of tuition discounting at public institutions, but future tuition discounting studies should continue to focus on the student (as opposed to the institution) as the primary unit of measure. By focusing on student characteristics, researchers will be able to identify how institutional aid policies are impacting student behavior while simultaneously considering the intended and unintended consequences of redistributing institutional aid based on merit versus need.

Resources

Allan, R. (1999a). *Taxonomy of tuition discounting.* Journal of Student Financial Aid, 29(2), No. 2.

Allan, R. (1999b). *Tuition discounts, institutional student and aid scholarship allowance.* Washington, DC: Sallie Mae Education Institute.

Bean, J. & Eaton, S. B. (2000). *A psychological model of college student retention. Reworking the Student Departure Puzzle*: Vanderbilt University Press.

Bishop, J., Wobmann, L. (2004, April). *Institutional effects in a simple model of educational production.* Education Economics, 12(1).

College Board, (2006). *Tuition discounting: Not just a private college practice.* The College Board. New York, New York

College Board, (2007). *Trends in college pricing 2007.* The College Board. New York, NY.

Davis, J. (2003) *Unintended consequences of tuition discounting.* Lumina Foundation for Education New Agenda Series, 5(1).

DesJardins, S. L., Bell, A. (2006). *Using economic concepts to inform enrollment management.* New Directions for Institutional Research, 132.

Ehrenberg, R. (2006). *Crafting a class: the trade-off between merit scholarships and enrolling lower-income students.* The Review of Higher Education, 29(2), 195-211.

Eisenhardt, K. (1989). *Agency theory: An assessment and review.* The Academy of Management Science Review, 14(1), 57-74.

Heller, D. (1997) *Student price response in higher education: An update to Leslie and Brinkman.* The Journal of Higher Education, 68(6).

Heller, D. (2000). *Institutional scholarship awards: The role of student and institutional characteristics.* Presented at the annual meeting of the Association for the Study of Higher Education. Sacramento, CA, November 16-19, 2000.

Heller, D. (2002, August). *Merit scholarship and college access: Evidence from Florida and Michigan. Who should we help? The negative social consequences of merit aid scholarships.* Harvard Project on Civil Rights. Cambridge, MA.

Hossler, D. (2000). *The role of financial aid in enrollment management.* New Directions for Student Services, No. 89, pp. 77-90.

Hossler, D., Bean, J. (1990). *The strategic management of college enrollments.* San Francisco: Jossey-Bass Inc.

Hossler, D., Braxton, J., Coopersmith, G. (1989). *Understanding student college choice.* In J. Smart (Ed.) Higher Education Handbook of Theory and Research. New York: Agathon Press.

Lapovsky, L. (2001). *Institutional financial health: tuition discounting and enrollment management.* Study of College Costs and Prices, Vol. 2: Commissioned papers. The Institute for Higher Education Policy (ed.)

Lapovsky, L., Hubbell, L. (2001). *An uncertain future.* The Business Officer, 34(8).

Lee, J. B., Clery, S.B. (1997) Institutional aid 1992-93. *Postsecondary education descriptive analysis reports,* National Center for Education Statistics, Washington, DC.

Martin. R. (2004). *Tuition discounting without tears.* Economics of Education Review, 23.

National Association of State Scholarship and Grant Aid Programs (NASSGAP), (2006). *37th annual survey report on state-sponsored student financial aid: 2005-06 academic year.* Retrieved February 2009 from http://www.nassgap.org/viewrepository.aspx?categoryID=3#

Sappington, D.E. (1991). *Incentives in principal-agent relationships.* The Journal of Economic Perspectives, 5(2), 45-66.

St. John, E., Paulsen, M. & Starkey, J. (1996). *The nexus between college choice and persistence.* Research in Higher Education, 37, 175-220.

St. John, E. P., (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.P. (2005, January). *Affordability of postsecondary education: equity and adequacy across the 50 states.* Prepared for: Renewing Our Schools, Securing Our Future – A National Task Force on Public Education. Center for American Progress and the Institute for America's Future.

Tinto, V. (1993). Leaving college: *Rethinking causes and links of student attrition.* Chicago: University of Chicago Press.

Toutkoushian, R. (2001). *Trends in revenues and expenditures for public and private higher education.* In Paulson, M. and Smart, J. (eds) The Finance of Higher Education: Theory, Research, Policy, and Practice. New York, NY.

Weerts, D.J., Ronca, J. (2006). *Examining differences in state support for higher education: a comparative study of state appropriations for research I universities.* The Journal of Higher Education, 77(6).

Wilkinson, R. (2005). *Aiding students, buying students: Financial aid in America.* Vanderbilt University Press, Nashville, TN.

Table 1: Descriptive statistics of all students attending public four-year colleges

	Tuition and fees (NPSAS)	Percent receiving tuition discount	Average institutional grant	Institutional merit-only grants	Institutional need-based grants	Total discount rate
Race/Ethnicity:						
White	$4,244	19.8%	$565	$305	$184	13.3%
Black or African American	$4,244	22.0%	$891	$472	$319	21.0%
Hispanic or Latino	$4,244	23.3%	$535	$141	$344	12.6%
Asian	$4,244	26.0%	$781	$228	$482	18.4%
Other or multiple	$4,244	21.8%	$521	$181	$225	12.3%
Adjusted Gross Income (AGI):						
Less than $30,000	$4,244	23.8%	$625	$262	$295	14.7%
$30,000 - $50,000	$4,244	20.8%	$567	$246	$247	13.4%
$50,000 - $70,000	$4,244	19.6%	$572	$328	$175	13.5%
$70,000 - $100,000	$4,244	19.9%	$640	$367	$165	15.1%
Greater than $100,000	$4,244	15.0%	$605	$358	$158	14.2%
Gender:						
Male	$4,244	19.8%	$599	$307	$221	14.1%
Female	$4,244	21.7%	$613	$290	$240	14.4%
Parent's highest education level:						
No college	$4,244	20.9%	$521	$223	$242	12.3%
Associate's degree or some college	$4,244	19.6%	$518	$230	$218	12.2%
Bachelor's	$4,244	20.5%	$624	$316	$222	14.7%
Post-baccalaureate or professional	$4,244	22.0%	$772	$432	$237	18.2%
Type of high school attended:						
No high school diploma	$4,244	14.4%	$259	$106	$134	6.1%
Public	$4,244	21.0%	$591	$290	$231	13.9%
Private	$4,244	21.1%	$677	$325	$234	16.0%
Attended a foreign high school	$4,244	22.2%	$1,310	$715	$376	30.9%
Residency status:						
Resident	$3,632	19.8%	$495	$225	$217	13.6%
Non-resident	$9,755	30.4%	$1,617	$958	$356	16.6%
Type of institution (Carnegie):						
Research & Doctoral	$5,149	24.6%	$841	$393	$352	16.3%
Master's & Baccalaureate	$3,420	17.3%	$385	$212	$113	11.3%

	Tuition and fees (NPSAS)	Percent receiving tuition discount	Average institutional grant	Institutional merit-only grants	Institutional need-based grants	Total discount rate
Class level:						
Freshman	$4,244	23.4%	$687	$324	$262	16.2%
Sophomore	$4,244	20.4%	$652	$331	$251	15.4%
Junior	$4,244	20.8%	$654	$355	$218	15.4%
Senior	$4,244	21.1%	$570	$270	$228	13.4%
Other (5th yr or unclassified)	$4,244	15.3%	$337	$122	$165	7.9%
Dependency status:						
Dependent	$4,244	24.3%	$783	$415	$274	18.5%
Independent	$4,244	14.2%	$269	$73	$149	6.3%
Choice of major:						
Undeclared	$4,244	16.8%	$482	$231	$186	11.4%
Humanities & Social Sciences	$4,244	22.1%	$610	$266	$277	14.4%
Sciences (life, physical, math, computer, engineering)	$4,244	24.8%	$800	$420	$295	18.9%
Education	$4,244	20.1%	$527	$297	$158	12.4%
Business	$4,244	18.4%	$545	$259	$191	12.8%
Health	$4,244	22.0%	$541	$237	$236	12.7%
Other	$4,244	19.1%	$607	$324	$197	14.3%
Enrollment pattern:						
Enrolled mostly full-time	$4,244	24.7%	$747	$377	$281	17.6%
Enrolled mostly part-time	$4,244	9.1%	$182	$71	$71	4.3%
Enrolled full-time & part-time equally	$4,244	15.8%	$428	$125	$220	10.1%
Grade point average:						
Less than 2.0	$4,244	14.1%	$323	$101	$170	7.6%
2.0 - 2.5	$4,244	16.0%	$498	$236	$189	11.7%
2.5 - 3.0	$4,244	17.6%	$483	$220	$206	11.4%
3.0 - 3.5	$4,244	22.4%	$621	$298	$258	14.6%
3.5 - 4.0	$4,244	30.1%	$977	$542	$308	23.0%

Table 2: State Table I: Tuition Discount Rates by State and Residency Status

		RESIDENT STUDENTS				NON-RESIDENT STUDENTS			
	Percent of all students receiving discount	Percent receiving discounts	Tuition	Mean grant	Discount rate	Percent receiving discounts	Tuition	Mean grant	Discount rate
New York	10.1%	9.3%	$4,002	$154	3.8%	21.5%	$7,454	$783	10.5%
Georgia	11.4%	9.5%	$2,674	$266	10.0%	37.1%	$10,816	$2,153	19.9%
Tennessee	16.3%	13.7%	$2,930	$314	10.7%	35.5%	$7,129	$3,196	44.8%
Oregon	17.0%	18.2%	$4,408	$291	6.6%	9.7%	$9,972	$202	2.0%
Minnesota	17.1%	16.6%	$4,071	$347	8.5%	19.7%	$5,312	$348	6.6%
Indiana	18.5%	16.3%	$3,652	$405	11.1%	32.6%	$12,935	$1,258	9.7%
Illinois	20.3%	19.7%	$4,498	$570	12.7%	33.1%	*	$2,221	*
US	20.8%	19.7%	$3,632	$495	13.6%	30.4%	$9,755	$1,617	16.6%
Connecticut	23.0%	20.6%	$4,873	$838	17.2%	38.2%	$10,356	$2,467	23.8%
Texas	23.7%	23.2%	$2,997	$412	13.7%	34.7%	$6,656	$1,428	21.5%
California	34.9%	35.6%	$3,188	$923	29.0%	10.6%	$10,726	$765	7.1%
Delaware	37.7%	40.2%	$6,505	$1,431	22.0%	35.0%	$12,524	$1,206	9.6%
Nebraska	42.2%	40.7%	$3,424	$1,006	29.4%	53.1%	$8,719	$3,324	38.1%

* Low *n*.

Table 3: State Table II – Resident Discount Rates and Percentage of Recipients by State and Family Income Level

		AVERAGE DISCOUNT RATE					PERCENTAGE OF RESIDENTS* RECEIVING DISCOUNT				
	In-state tuition	$0 - $30000	$30000 - $50000	$50000 - $70000	$70000 - $100000	$100000+	$0 - $30000	$30000 - $50000	$50000 - $70000	$70000 - $100000	$100000+
California	$3,188	44.9%	27.5%	18.5%	13.8%	4.4%	55.4%	29.6%	24.2%	14.9%	10.2%
Connecticut	$4,873	26.8%	10.7%	16.5%	9.7%	18.5%	22.2%	22.7%	25.9%	17.0%	16.8%
Delaware	$6,505	30.2%	18.0%	37.7%	14.6%	10.9%	52.6%	38.8%	48.0%	39.2%	22.8%
Georgia	$2,674	10.4%	5.7%	11.1%	11.3%	13.1%	9.6%	8.8%	9.6%	11.4%	8.7%
Illinois	$4,498	14.3%	13.1%	13.1%	9.7%	12.3%	22.2%	18.6%	22.3%	16.6%	15.3%
Indiana	$3,652	9.4%	7.7%	17.5%	10.1%	13.0%	13.3%	17.1%	22.7%	14.6%	16.6%
Minnesota	$4,071	10.8%	8.4%	9.4%	8.0%	4.0%	20.2%	22.4%	13.1%	12.9%	12.4%
Nebraska	$3,424	17.8%	35.3%	23.6%	51.0%	37.0%	38.7%	60.6%	28.5%	47.3%	27.8%
New York	$4,002	2.5%	5.1%	7.6%	4.1%	3.0%	7.5%	11.6%	13.8%	0.0%	6.0%
Oregon	$4,408	6.4%	8.9%	8.5%	3.3%	5.6%	19.7%	19.0%	19.5%	12.1%	17.4%
Tennessee	$2,930	7.0%	8.6%	9.3%	23.6%	14.0%	15.3%	8.9%	14.1%	13.8%	16.6%
Texas	$2,997	14.5%	18.8%	15.6%	11.3%	4.1%	28.5%	29.7%	19.9%	16.1%	6.4%

*Table shows resident students only.

Table 4: Binary Logistic Regression Output: Y= (1) Received Tuition Discount, (0) Did Not Receive Tuition Discount

		Odds Ratio	*SE*	*t*	
	Intercept	*0.307*	-	-	
Compared to independent students	Dependent	1.997	0.011	10.829	***
Compared to female students	Male	0.949	0.01	-1.023	
Compared to White students	Black or African American	1.254	0.015	1.875	
	Hispanic or Latino	1.222	0.01	2.271	*
	Asian	1.139	0.01	1.337	
	Other	1.156	0.01	1.173	
Compared to full-time students	Part-time	0.35	0.013	-8.771	***
	Mix, part-time and full-time	0.881	0.01	-2.383	*
Compared to students who attended public high schools	No high school	0.777	0.007	-2.04	
	Private	0.963	0.009	-0.443	
	Foreign	0.642	0.011	-2.474	*
Compared to freshmen	Sophomore	0.784	0.011	-3.211	***
	Junior	0.806	0.011	-3.13	**
	Senior	0.824	0.011	-2.978	**
	Other (5th yr or unclassified)	0.707	0.012	-3.039	**
Compared to students with GPA of 3.5 - 4.0	Below 2.0	0.32	0.011	-11.128	***
	2.0 - 2.5	0.375	0.01	-14.56	***
	2.5 - 3.0	0.432	0.011	-13.472	***
	3.0 - 3.5	0.597	0.012	-8.979	***
Compared to students with undeclared majors	Humanities & Social Science	1.212	0.011	2.426	*
	Education	1.034	0.012	0.052	
	Business	1.066	0.011	0.688	
	Health	1.177	0.01	1.435	
	Vocational or other	1.017	0.01	-0.098	
	Sciences (life, physical, math, computers, engineering)	1.367	0.013	3.713	***
Compared to students who come from families with AGI $50,000-$70,000	Less than $30,000	1.896	0.013	8.632	***
	$30,000 - $50,000	1.265	0.009	3.47	***
	$70,000 - $100,000	0.903	0.011	-1.479	
	Above $100,000	0.571	0.011	-6.368	***
Compared to students whose parents' educational attainment is a bachelor's degree	No college	1.061	0.01	1.298	
	Associate's degree or some college	0.938	0.009	-0.707	
	Post-baccalaureate or professional	1.082	0.01	1.254	
Compared to resident students	Non-resident	1.717	0.015	4.804	***
Compared to students attending doctoral/research institutions	Master's or baccalaureate	0.73	0.016	-3.68	***

Note: Wald F (X^2) = 27.912. Pseudo R^2 = 0.082

* significant at $\propto < 0.10$. ** significant at $\propto < 0.05$. *** significant at $\propto < 0.01$