

Journal of Student Financial Aid

Volume 40, Number 1

2010



Exploring the College Enrollment of Parents: A Descriptive Analysis

By Laura W. Perna, Rachél Fester, and Erin Walsh



NATIONAL ASSOCIATION OF STUDENT FINANCIAL AID ADMINISTRATORS

Executive Editor
JOE PAUL CASE
Amherst College, MA

Editorial Board 2010-11
EMILY ATTRIDGE
Stetson University College
of Law, FL

DANIEL BARKOWITZ
Columbia University, NY

SANDY BAUM
Skidmore College, NY

JACOB P.K. GROSS
West Virginia Higher Education
Policy Commission

ALICIA HARRIS
Oklahoma City Community
College

DONALD E. HELLER
Pennsylvania State University

ANTHONY P. JONES
U.S. Department of Education
Advisory Committee on Student
Financial Assistance, DC

KATHLEEN D. KOCH
Seattle University, WA

DAVID LEVY
Scripps College, CA

JAMES P. MALLOY
University of Notre Dame, IN

SANDRA MAY
Florida Career College

Commission Director
DANIEL R. MANN
University of Illinois at Urbana-
Champaign

Editorial Staff
LINDA CONARD
Managing Editor, Director of
Development, NASFAA

THE JOURNAL OF STUDENT FINANCIAL AID is the official journal of the National Association of Student Financial Aid Administrators (NASFAA). NASFAA is a non-profit association of institutions of postsecondary education and individuals who are interested in promoting the effective administration of student financial aid. NASFAA coordinates efforts nationally to improve the delivery of student assistance and to increase the resources available to needy students.

MANUSCRIPT SUBMISSION: Submit manuscripts to Joe Paul Case, Editor, Journal of Student Financial Aid, Office of Financial Aid, P.O. Box 5000, B-5 Converse Hall, Amherst, MA 01002-5000; e-mail jpcase@amherst.edu.

NASFAA MEMBERSHIP: Membership in the National Association of Student Financial Aid Administrators includes receiving the Journal of Student Financial Aid. For further information, please contact NASFAA, 1101 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036-4374; phone (202) 785-0453 ext.1; fax (202) 785-1487; e-mail membership@nasfaa.org.

SUBSCRIPTIONS: \$45.00/year. For information or subscription orders write NASFAA, Journal of Student Financial Aid, 1101 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036-4374 or e-mail membership@nasfaa.org.

CHANGE OF ADDRESS: Notices should be sent to NASFAA, Journal of Student Financial Aid, 1101 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036-4374 or via e-mail membership@nasfaa.org.

REPRINTS: Reprints of articles can be obtained in lots of not less than fifty. Back issues of the Journal may be ordered for \$15.00 from NASFAA, 1101 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036-4374. The Journal is also available on microfilm from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106. The Journal is indexed and abstracted in the ERIC monthly bibliographic journal, Current Index to Journals in Education.

REPRODUCTION: Copyright held by NASFAA. Permission must be requested in writing for any reproduction of the Journal of Student Financial Aid. All rights reserved.

The Journal is published three times a year by the National Association of Student Financial Aid Administrators, 1101 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036-4374.

National Association of Student Financial Aid Administrators
Barry Simmons, National Chair, 2009-10
Virginia Polytechnic Institute and State University

Cover photograph by Edward Bock.

Copyright © 2010 by the National Association of Student Financial Aid Administrators.

Journal of Student Financial Aid

Volume 40, Number 1

2010

Editor's Column	Of Borrowing and Lending	2
Articles	Exploring the College Enrollment of Parents: A Descriptive Analysis By Laura W. Perna, Rachél Fester, and Erin Walsh	6
	Who Benefits from Tuition Discounts at Public Universities? By Nicholas W. Hillman	17
	Graduate Student Persistence: Evidence from Three Decades By Suchitra Gururaj, Julian Vasquez Heilig, and Patricia Somers	31
Guidelines for Authors:		47
NASFAA Sponsored		50
Research Grant Program		

Editor's Column: Of Borrowing and Lending

*Neither a borrower nor a lender be;
For loan oft loses both itself and friend,
And borrowing dulls the edge of husbandry.*

– Hamlet, Act I, Scene 3

Polonius' words to his son, Laertes, in Shakespeare's time may have been good advice, but they seem to have long since been superseded in contemporary postsecondary education in the United States. Being a lender is now the norm for institutions, the federal government, and others; and most students who need financial aid find themselves to be borrowers.

Aid administrators have faced increasing challenges in the world of lending, especially with new federal statutes enacted and regulations promulgated.

- Moving to Direct Lending. The Federal Family Education Loan program will end June 30, 2010, and all institutions will move to the federal Direct Loan program. Although some institutions have participated in Direct Loans since 1994, the majority of institutions will be transitioning to the program in the coming months. The move requires familiarization with new procedures and rethinking business workflows. Administrators experienced with Direct Loans have the opportunity to help their colleagues who are new to the program to make a smooth transition.
- Truth-in-Lending regulations. Rules published in August 2009 by the Federal Reserve System require lenders of private educational loans and schools making non-Title IV federal loans to comply with new disclosure requirements at various times in the lending process. In addition, these loans require borrowers to complete self-certification forms with institutionally provided information about cost of attendance and financial assistance. Unfortunately, the regulations focus on disclosures about the current loan and overlook cumulative borrowing.
- Preferred lender lists. Federal laws now specify that, if an institution maintains a "preferred lender list," potential borrowers must be informed about how the list was developed and be provided certain comparative information. The statutes were intended to curb perceived abuses in the federal loan programs, but with the end of FFEL and shift to Direct Loans, the law now applies only to lists of private educational loans.
- Counseling student borrowers. Federal regulations now require that students who contemplate taking a private (or alternative) educational loan be apprised of federal borrowing opportunities that may afford more favorable terms. This good practice can help limit reliance on private loans, which are frequently more costly to students and parents.

- Institutional certification of alternative loans. NASFAA and others are advocating that aid administrators have a direct role in certifying applications for private educational loans. Such a move would allow student aid professionals to provide appropriate counseling and to intervene in individual cases.

Although borrowers don't face the administrative challenges faced by aid administrator, there are changes that affect borrowers – some perhaps even to their benefit.

- Expansion of student loan limits. Borrowing limits on most federal loans have expanded in the past few years after a long period with little change. The increases, however, can be a two-edged sword. Higher limits help students address rising college costs, but they also mean that students may accumulate ever larger debts.
- Intergenerational transfer of responsibility. Some changes in federal loan rules and borrowing limits contribute to students' assuming a larger share of their educational costs. The recent economic downturn has perhaps exacerbated the situation, but many aid administrators have seen for some while a willingness of part of the current parent generation to pass their expected contributions on to their children. This is potentially a serious erosion of a fundamental principle of the financial aid policy that families will contribute toward their children's educational expenses as they are able.
- "Upside down" students. As home prices have fallen in many parts of the country, owners have found themselves "upside down" – their homes are worth less than the outstanding mortgage. The same danger exists for students who take on large loan debts in relation to the prospective return on their educational investment. This is a controversial issue for many institutions, especially with proposed regulations limiting student borrowing in relation to prospective income in the students' chosen career.
- Income-contingent repayment. Income-contingent repayment has been expanded to encompass all federal student loans. This will ease the burden of many graduates whose monthly payments are a significant encumbrance and may be limiting factors in life decisions, such as vocation, marriage, and having a family.
- Bankruptcy relief. NASFAA and others are supporting a proposed change in bankruptcy laws to permit discharge of private educational loans. The current statute dates from the late 1990's. Consumer advocates contend that this is a needed remedy for some situations and can be appropriately adjudicated in the courts.
- Transparency. The student side of the loan disclosure coin is greater transparency in the process. Better understanding of the terms and conditions of borrowing is for everyone's benefit. It is necessary, however, to strike the proper balance between clear, succinct information and data overload that is ultimately ignored by borrowers and disdained by lenders.

- Loan aversion. Long-standing studies demonstrate that students from lower income backgrounds are more averse to taking student loans than students from more affluent backgrounds. Often alarm at the size of student debt in relation to family income, negative family experiences with credit, and uncertainties of future income contribute to loan aversion. Concerted efforts to provide adequate funding for need-based grants and sensitivity to responsible loan levels in student aid awards can help relieve some of the concern.
- Financial literacy. Recent studies indicate that students – especially those from lower income backgrounds – need instruction in personal finances. Managing a monthly budget, planning for post-graduation expenses, savvy about credit and debit cards, and reasonable student loan debt are just a few of the possible topics. Some institutions have been at the forefront of providing financial literacy education. More need to join the effort and enlist national organizations in the undertaking.

The points made here are just a superficial summary of emergent issues in lending and borrowing. Aid administrators can lead the way by being ready, flexible, and adaptable to change, and by promoting good practices in their institutions and responsible borrowing among their students and their families.

Polonius concluded his fatherly advice to Laertes –

*This above all: to thine ownself be true,
And it must follow, as the night the day,
Thou canst not then be false to any man.*

That advice hasn't been superseded.

In this Issue

We are pleased to present three articles to readers of the Journal.

- Laura Perna, of the University of Pennsylvania, and her collaborators, Rachél Fester and Erin Walsh, use data from the National Postsecondary Student Aid Study to investigate undergraduate students who are parents. They describe the demographics of this population and examine the ways that such student-parents finance their education, which may include expenses beyond traditional, direct educational expenses. The population, which is disproportionately female and older, has many challenges that can impinge on their educational success. The authors found, in particular, that state financial aid appeared unrelated to the students' enrollment, but they suggest further study of ways that state and other aid can be more beneficial in supporting enrollment and persistence.
- Nick Hillman, of Indiana University, also uses NPSAS data in his study of the beneficiaries of tuition discounting at public universities. Based on analysis of students' demographic characteristics, his findings are encouraging in many ways. Institutional discounts tend to support outreach to students of color and those from lower-income backgrounds, and to provide an incentive to first-year and out-of-state students as well as. On the other hand, he also

found that the average amount of tuition discount seemed to favor the more affluent student over the less affluent. He notes that tuition discounting can be a significant factor in student success and that institutions should capitalize on their efforts in this direction.

- Suchitra Gururaj, Julian Vasquez Heilig, and Patricia Somers, of the University of Texas at Austin, use results of previous studies to analyze graduate student persistence, especially in relation to the amount and kind of financial assistance provided. From the perspective of three decades' of studies, the authors found that that graduate student indebtedness – even considering other educational and personal variables – was not significant in predicting persistence. Higher tuition levels appeared to be a positive factor in persistence, though that factor may be intertwined with selectivity of the graduate program. As one might intuit, grant assistance was found to be positively correlated to graduate student retention.

Joe Paul Case,
Editor

Exploring the College Enrollment of Parents: A Descriptive Analysis

By Laura W. Perna, Rachél Fester, and Erin Walsh

Laura W. Perna is professor of higher education management in the Graduate School of Education at the University of Pennsylvania.

Rachél Fester and Erin Walsh are Ph.D. candidates in this program.

This research was funded in part by the Lumina Foundation for Education. Rachél Fester's participation in the project was supported by the Institute of Education Sciences, U. S. Department of Education, through Grant R305C050041-05 to the University of Pennsylvania. The opinions expressed in this paper are those of the authors and do not necessarily represent the views of the Lumina Foundation, the U. S. Department of Education, or either organization's employees. An earlier version of this paper was presented at the annual meeting of the Student Financial Aid Research Network in Baltimore, Maryland in June 2008.

Despite the substantial size of the population, relatively little research has focused on the status and experiences of undergraduate parents. Using descriptive analyses of data from the NPSAS:04, this study provides a starting point for campus administrators, public policymakers, and educational researchers who seek to identify ways to better understand the characteristics of this population.

Currently 34 million working adults in the United States have not attended college and 54 million working adults have not earned a degree (Pusser, Breneman, Gansneder, Kohl, Levin, Milam & Turner, 2007). Addressing the barriers that limit the transition to postsecondary education for all individuals, including adult learners, is increasingly important to the nation's continued prosperity in a knowledge-based economy (Council for Adult and Experiential Learning, 2008).

One common policy lever for increasing college enrollment is student financial aid, as financial aid reduces the price of enrollment. Most financial aid (e.g., 67% of aid awarded to undergraduates in 2007-08) is awarded via federally-sponsored student financial aid programs (College Board, 2008). Nonetheless, state governments may also play an important role in promoting financial access to college. Between 1997-98 and 2007-08, the amount of funds awarded to undergraduates from state grant programs increased by 80% after controlling for inflation, a faster rate of growth than Federal Pell Grants (75% increase) and grants from colleges and universities (78% increase, College Board, 2008). In 2007-08, state grants totaled nearly \$8 billion, or 7% of all aid received by undergraduates (College Board, 2008).

These aggregate statistics mask variations in the availability of aid across states. Whereas criteria for receiving federal financial aid do not vary across states, both the amounts of state grants and the criteria for receiving state grants vary widely. For example, some states (e.g., South Carolina, New York, Georgia, and Kentucky) offer over \$1,000 in grant aid per full-time equivalent (FTE) undergraduate student, while others (e.g., Arizona, Hawaii, and Wyoming) offer less than \$10 per FTE (College Board, 2007).

These state variations provide an opportunity to explore variations in the college enrollment of one segment of the adult learner population – i.e., parents – based on the availability of financial aid. Capitalizing on state variations, this study uses descriptive analyses of data from the 2003-04 National Postsecondary Student Aid Survey (NPSAS:04) to explore whether college enrollment rates of parents vary based on the availability of state grants. Because little is known about the college enrollment of students who are also parents, the paper also uses descriptive analyses of the NPSAS:04 to describe the demographic and college-related characteristics of this population.

Review of Literature

As others have noted (e.g., Donaldson & Townsend, 2007), although a substantial body of research examines the enrollment of high school graduates directly into college, relatively little research has focused on the college enrollment characteristics or experiences of adult learners in general or parents in particular. The available research suggests that, for adult learners, access to postsecondary education is influenced by such forces as the accessibility of postsecondary education options (e.g., online courses, community colleges, off-campus centers, flexible class schedules), availability of employer-provided tuition assistance and other financial aid, availability of child care, and parental responsibilities (Lumina Foundation, 2007; Pusser et al., 2007), and that adult students benefit from flexible and accelerated programs, transition and transfer policies between programs and institutions, and financial aid policies and practices that allow for part-time study (Kazis et al., 2007).

Other research suggests the importance of financial aid to the college enrollment of adult learners (Lumina Foundation, 2007). Using difference-in-difference regression analyses and data from the Current Population Survey, Seftor and Turner (2000) found that, for low-income adult students, the introduction of the Pell Grant was associated with an increase in enrollment, but that restrictions in Pell eligibility after 1990 were associated with lower enrollment rates.

The positive association between financial aid and college enrollment is consistent with human capital theory. Rational models of human capital investment assume that individuals decide to invest in additional education based on a comparison of the expected benefits and costs (Becker, 1993). Financial aid is expected to increase the demand for higher education by reducing the costs of attendance (Becker, 1993).

Financial aid may also promote college enrollment indirectly by providing information on mechanisms for paying college prices. Among adult learners, parents of high school and college-age students may be particularly likely to experience this benefit of financial aid. Through the process of learning about ways to pay for their children's postsecondary education, these parents may gain and use information to promote their own college enrollment. Available research suggests that most parents of students attending four-year colleges participate in some aspect of their children's financial-aid related processes, including assisting with the financial aid application form, gathering financial aid information, and talking with a financial aid administrator and/or high school counselor (Stringer, Cunningham, O'Brien, & Merisotis, 1998).

These findings suggest the possibility that the college enrollment of parents may be higher in states with more substantial state grant programs than in other states, either because of the greater effect of aid on net price and/or because of parents' greater knowledge of the availability of aid. This study explores this possibility.

Method

This study uses descriptive analyses to examine the following research questions:

- 1) What are the demographic characteristics of parents who are enrolled as undergraduates?
- 2) How do undergraduate parents pay the price of attending postsecondary education?
- 3) How does the college enrollment of parents vary based on characteristics of the state grant program?

Sponsored by the National Center for Education Statistics (NCES), the NPSAS:04 provides data describing the characteristics of enrolled students and the ways that students and their families pay the price of postsecondary education. The sample includes about 80,000 undergraduates and 11,000 graduate and first-professional students enrolled at 1,400 four-year, two-year, and less-than-two year institutions nationwide at any time between July 1, 2003, and June 30, 2004, (Berkner & Wei, 2006). When weighted, the data are representative of the population of 19 million undergraduates and 3 million graduate and first-professional students (Berkner & Wei, 2006). The analyses for this study are limited to undergraduate students and weighted by the study weight for the sample (WTA00).

We define parents as students who are financially independent of their parents and who have at least one dependent child. The analyses consider several characteristics of parents (e.g., age of the youngest and oldest children, number of children), as well as a number of other indicators of students' demographic and enrollment characteristics.

The NPSAS:04 includes measures of the amount of state grant aid received by individual students, but no measures of the characteristics and availability of state grants within a state. Therefore, we constructed and integrated into the NPSAS dataset several measures from the National Association of State Student Grant and Aid Programs (NASSGAP). From the NASSGAP (2005) report, which provided data for the same academic year, 2003-04, as the NPSAS:04, we derived the following state-level measures of the magnitude of state grant aid: the amount of total state grant dollars relative to the population age 18 to 24, the amount of undergraduate state grant dollars relative to the undergraduate full-time equivalent enrollment (FTE), and the amount of need-based state grant dollars for undergraduates relative to undergraduate FTE. We also used data from the NASSGAP report to develop three measures of the criteria used to award state aid: the percent of total state aid awarded based only on need, the percent of total state aid based on need and merit, and the percent of total state aid based on only merit.

Results *Demographic Characteristics of Parents Enrolled in College*

In 2003-04, half of all undergraduates were financially dependent, 23% were independent without dependents, and 27% were independent with dependents. About 8% of independent undergraduates with dependents had dependents who were not children (i.e., 2% of all undergraduates). Thus, in 2003-04, 25% of all undergraduates were “parents,” i.e., financially independent with at least one dependent child. Because of the small number, independent students with dependents other than children are excluded from the remaining analyses.

Undergraduates who are parents differ from other undergraduates in terms of demographic characteristics such as gender, race/ethnicity, age, and their own parents’ educational attainment. Table 1 shows that, compared with other undergraduates, independent undergraduates with dependents are more likely to be female (71% compared with 53% of dependent undergraduates and 53% of independent undergraduates’ without dependents), Black (22% versus 10% of dependent undergraduates and 13% of independent undergraduates with no dependents), and age 30 or older (64% versus none of the dependent undergraduates and 39% of independent undergraduates with no dependents).

Educational attainment of the parents of undergraduates is substantially lower for undergraduates who themselves are parents than for other undergraduates. Nearly half (47%) of undergraduate parents have parents with no more than a high school education, compared with 25% of dependent undergraduates and 37% of independent undergraduates with no dependents. Only 25% of undergraduate parents have parents who have attained at least a bachelor’s degree, compared with 50% of dependent undergraduates and 36% of independent undergraduates with no dependents.

A higher percentage of parents (54%) than of independent students without dependents (32%) are married. But, this statistic also means that 46% of independent undergraduates with dependents are single parents. Nearly two-thirds (63%) of undergraduate parents had more than one dependent. Many of these undergraduate parents have children at an age that requires daycare or some sort of supervision, as 26% of undergraduate parents report that their oldest child is under age five and 42% indicate that their youngest child is under age five.

For 45% of undergraduate parents, the oldest child is under age 9, making it unlikely that these parents have enrolled in college because of college-related efforts they are making on behalf of their children. But, the data suggest that some undergraduate parents may have enrolled because of the college-related activities of family members. For 38% of undergraduate parents, the oldest dependent child is between the ages of 13 and 24. Nearly one-fifth (18%) of undergraduate parents report that another family member is also enrolled in college. For about half of these parents, the other family member enrolled in college is a spouse.

¹ Under the Title IV definition of dependency, any student age 24 and above on December 31 of the award year is automatically considered independent for federal student aid purposes.

Table 1: Distribution of undergraduates by dependency and parental status and demographic characteristics: 2003-04

Characteristic	Dependent	Independent, no dependents	Parent
Female	53.0%	53.0%	70.7%
Race/ethnicity			
White	67.2%	64.0%	55.7%
Black or African American	10.1%	12.7%	21.9%
Hispanic or Latino	12.0%	12.1%	14.3%
Asian	6.1%	6.0%	3.4%
Other	4.6%	5.3%	--
Age			
15-23	100.0%	13.7%	12.9%
24-29	--	47.2%	23.2%
30 or above	--	39.1%	63.9%
Parents' highest level education			
Do not know	1.8%	3.6%	4.1%
No more than high school	24.9%	36.8%	47.2%
Some college	23.6%	23.7%	24.1%
Bachelor's degree or higher	49.7%	36.0%	24.7%
Married	--	31.9%	54.1%
More than one dependent			63.2%
Age of oldest child			
Age 1-4	--	--	26.3%
Age 5-8	--	--	18.7%
Age 9-12	--	--	16.8%
Age 13-16	--	--	16.4%
Age 17-24	--	--	21.8%
Age of youngest child			
Age 1-4	--	--	42.2%
Age 5-8	--	--	21.2%
Age 9-12	--	--	15.0%
Age 13-16	--	--	11.5%
Age 17-24	--	--	10.0%
Number family members in college			
Dependent student	100.0%	--	--
1	--	91.3%	81.8%
2 or more	--	8.7%	18.1%
Spouse attending college	--	7.5%	7.8%
Total	100.0%	100.0%	100.0%

Note: Data weighted by WTA00. Source: Analyses of NPSAS:04

Table 2. Distribution of undergraduates by dependency and parental status and enrollment characteristics: 2003-04

Characteristic	Dependent	Independent, no dependents	Parent
Delayed enrollment into PSE			
Less than 5 years	99.7%	72.8%	65.6%
5 to 9 years	.3%	13.4%	13.1%
10 or more years	--	13.9%	21.4%
Has ever expected to earn least a bachelor's degree	94.0%	86.8%	82.2%
Undergraduate degree program			
Certificate or other	10.4%	22.0%	24.2%
Associate's degree	29.7%	38.5%	46.0%
Bachelor's degree	59.9%	39.5%	29.5%
Enrollment pattern			
Enrolled mostly full-time	76.2%	41.8%	39.4%
Enrolled mostly part-time	20.3%	54.9%	57.1%
Enrolled full-time & part-time equally	3.4%	3.4%	3.6%
Reason enrolled			
Job skills	13.7%	26.2%	34.5%
Personal interest	17.5%	27.9%	33.6%
Institutional type & control			
Public 2-year	35.5%	49.4%	56.6%
Public non-doctoral	18.2%	15.3%	10.7%
Public doctoral	22.5%	11.5%	5.3%
Private doctoral or non-doctoral	16.1%	10.0%	8.9%
Other	7.7%	14.8%	18.6%
Institution distance from home			
Less than 10 miles	25.6%	40.1%	39.3%
10 to 19 miles	12.2%	15.3%	17.4%
20 to 29 miles	11.6%	14.0%	16.0%
30 to 99 miles	22.6%	19.1%	19.7%
100 or more miles	27.9%	11.5%	7.5%
Institutional selectivity			
Most or very selective	16.8%	6.4%	2.9%
Moderately selective	35.3%	23.5%	17.2%
Minimally selective	7.8%	10.6%	11.3%
Open admission	39.6%	58.3%	67.4%
Major field of study – health sciences	8.8%	13.0%	20.6%
Total	100.0%	100.0%	100.0%

Note: Data weighted by WTA00. Source: Analyses of NPSAS:04

Enrollment Characteristics of Parents

Consistent with the age of undergraduate parents and other independent students, the analyses show that a substantial share of these students delayed enrollment into postsecondary education. Table 2 shows that about one-fifth (21%) of undergraduate parents and 14% of independent undergraduates with no dependents enrolled in postsecondary education more than 10 years after graduating from high school, while virtually all dependent undergraduates enrolled within five years of their high school graduation.

The majority of all undergraduates, including 82% of undergraduate parents, have at one time expected to earn at least a bachelor's degree. But, undergraduate parents appear less likely to attain this goal, as only 30% of undergraduate parents were enrolled in bachelor's degree programs in the 2003-04 academic year, compared with 60% of dependent undergraduates and 40% of independent undergraduates with no dependents. Time-to-degree is likely longer for parents than for dependent undergraduates, as 57% of undergraduate parents and 55% of other independent students are enrolled mostly part-time, compared with 20% of dependent undergraduates. Undergraduate parents are substantially more likely than dependent undergraduates to report being currently enrolled to enhance job skills (35% versus 14%) and for personal interest (34% versus 18%).

Undergraduate parents are similar to other independent undergraduates but unlike dependent undergraduates in terms of the types of institutions attended. Like other independent undergraduates, undergraduate parents tend to enroll in public two-year colleges (57% versus 36% of dependent undergraduates) and not enroll in public doctoral institutions (5% versus 23% of dependent undergraduates). Geographic proximity may be particularly important for independent students, as 39% of undergraduate parents but only 26% of dependent undergraduates attend an institution that is within 10 miles of their homes. Academic accessibility may also be important for this population, as 67% of undergraduate parents, as compared with 40% of dependent undergraduates, attend an open admissions institution.

The pattern of major field choice is remarkably similar across the four groups. The one notable difference is the share of students majoring in health-related fields. Table 2 shows that 21% of undergraduate parents report health majors, compared with 9% of dependent undergraduates and 13% of independent undergraduates with no dependents.

Pattern of Paying the Price of Postsecondary Educational Enrollment

The distribution of undergraduate parents by the net price of attendance is similar to that of other independent undergraduates but different than that of dependent undergraduates. Table 3 shows that, after considering grants, 88% of undergraduate parents face tuition and fees less grants below \$4,000, compared with 71% of dependent undergraduates. Looked at another way, about 40% of independent undergraduates face a student budget (i.e., price of attendance including tuition, fees, and non-tuition expenses adjusted for attendance status) less all grants below \$4,000, compared with 23% of dependent undergraduates.

A higher share of undergraduate parents than of other undergraduates receives federal need-based aid, particularly Pell Grants (41% versus 22% of dependent undergraduates and independent undergraduates with no dependents). Employer aid is relatively more common for independent than dependent undergraduates (13% of undergraduate parents versus only 2% of dependent undergraduates).

Table 3. Distribution of undergraduates by dependency and parental status and net price of attendance: 2003-04

Characteristic	Dependent	Independent, no dependents	Parent
Tuition & fees minus all grants:			
Less than \$4,000	71.0%	84.3%	88.0%
\$4,000 - 7,999	15.3%	9.5%	8.5%
\$8,000 - 11,999	5.1%	4.1%	2.5%
\$12,000 - 15,999	3.5%	1.3%	.7%
\$16,000 or more	5.1%	.9%	.2%
Student budget minus all grants:			
Less than \$4,000	23.1%	36.8%	39.8%
\$4,000 - 7,999	22.3%	27.6%	31.7%
\$8,000 - 11,999	20.7%	16.8%	15.4%
\$12,000 - 15,999	16.3%	10.3%	7.7%
\$16,000 or more	17.6%	8.5%	5.5%
Percent receiving various types of aid:			
Federal aid	47.8%	40.5%	49.6%
Federal need-based aid	38.9%	37.6%	48.4%
Pell Grant	21.9%	22.0%	40.5%
Stafford loan	35.7%	31.3%	30.7%
Veterans benefits	1.0%	4.1%	4.1%
State grant	17.9%	9.8%	12.8%
Institution grant	25.5%	11.0%	8.6%
Employer aid	1.8%	11.9%	12.5%
Private grant	9.8%	3.6%	3.7%
Private loan	6.9%	4.0%	3.0%

Note: Data weighted by WTA00. Source: Analyses of NPSAS:04

Relationship between Enrollment and Characteristics of State Grant Programs

Regardless of the characteristic of the state grant program that is considered, the distribution of undergraduates by dependency and parental status does not vary. Table 4 shows that enrollment patterns seem unrelated to the criteria used to award state aid (as measured by the emphasis of state aid on need, merit, or both need and merit) or the magnitude of available state aid dollars (as measured by undergraduate grant award per undergraduate FTE, total state grant award per the traditional college-age population, and the estimated need-based undergraduate grant award per undergraduate FTE).

Table 4. Distribution of undergraduates by dependency and parent status and characteristics of state aid: 2003-04

Characteristic	Dependent	Independent, no dependents	Parent
75% or more state aid awarded based on:			
Need only	36.4%	32.0%	32.2%
Need and merit	19.7%	24.0%	22.7%
Merit only	1.9%	2.1%	1.9%
Estimated undergraduate state grant dollars/Undergraduate FTE:			
Less than \$250	27.3%	28.8%	31.2%
\$250 – 499	35.8%	36.7%	34.1%
\$500 – 749	22.4%	21.7%	22.9%
\$750 or more	14.5%	12.8%	11.7%
Total state grant dollars/Population age 18-24:			
Less than \$250	73.8%	77.5%	77.8%
\$250 – 499	25.2%	21.2%	20.7%
\$500 – 749	1.1%	1.3%	1.5%
Need-based undergraduate state grant dollars/Undergraduate FTE:			
Less than \$250	40.1%	43.8%	47.6%
\$250 – 499	35.2%	35.9%	34.3%
\$500 – 749	15.2%	12.6%	11.9%
\$750 or more	9.5%	7.7%	6.1%

Note: Data weighted by WTA00. Source: Analyses of NPSAS:04

Discussion

Although this study is exploratory, descriptive, and based only on cross-sectional data, several conclusions may be drawn from our findings. First, parents comprise a substantial share of the undergraduate population. In 2003-04, about one in four undergraduates was a parent and half of all independent undergraduates were parents.

Second, although dependent and independent undergraduates consistently differ in terms of most demographic, enrollment, and other characteristics, undergraduate parents are similar in some characteristics and different in others when compared with other independent undergraduates. For example, like other independent undergraduates, undergraduate parents are relatively concentrated in public two-year institutions. But, compared with both dependent undergraduates and other independent undergraduates, undergraduate parents are disproportionately female and age 30 or older.

Third, for many parents, enrolling in undergraduate programs may first require finding childcare. Nearly half (46%) of independent undergraduates are single parents. For nearly half (42%) of undergraduate parents, the youngest child is under the age of five.

Fourth, a substantial share of undergraduate parents have characteristics that put them at risk for failing to complete an undergraduate degree (Horn, 1996). Like other independent students, most parents in undergraduate programs enrolled a substantial number of years after graduating from high school. More than half (57%) of undergraduate parents are enrolled mostly part time. Undergraduate parents also tend to have parents with low levels of education.

Finally, the availability of state aid seems unrelated to the college enrollment of parents. But, the descriptive analyses suggest that some parents may learn about postsecondary education through their spouse or child's enrollment. One in five undergraduate parents report having another family member also enrolled in college and 38% have an oldest dependent child between the ages of 13 and 24.

Implications for Policy, Practice, and Future Research

These analyses suggest several implications for policy, practice, and future research. In terms of public policy, the analyses suggest that state grant aid does not have a differential effect on the college enrollment of independent undergraduates, including undergraduate parents. Federal Pell Grants and employer aid appear to be more important sources of financial resources for independent students than state grant aid. Other reports suggest that financial aid is substantially less available for adult learners than for other students, given that many aid programs are limited to students who are enrolled full-time. The Council for Adult and Experiential Learning (2008) notes that 17 states do not provide any need-based aid for part-time students and that 18 states allocate less than 10% of their need-based aid to part-time students. About two-thirds (64%) of undergraduates age 25 and older are enrolled part-time, compared with only 24% of undergraduates under the age of 25 (NCES, 2008).

In terms of institutional practice, the analyses suggest that community colleges and other open admissions institutions currently have the greatest responsibility for promoting the success of undergraduate parents, as 57% of undergraduate parents attend community colleges and 67% of undergraduate parents attend open admissions institutions. The findings also underscore the need for these institutions to consider the ways that access and success for undergraduate parents may be limited by childcare demands.

The analyses also suggest several questions for future research, including: How can state and other financial aid programs be used to better promote the enrollment of undergraduate parents? Why are undergraduate parents relatively concentrated in health-related majors? How can institutions promote college access and success for undergraduate parents, particularly given the characteristics that put these students at-risk for academic failure? Raising the educational attainment of all adults, including independent undergraduates with children, requires more attention to these and other questions.

References

- Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis with special reference to education* (3rd ed.). Chicago: University of Chicago Press.
- Berkner, L., and Wei, C.C. (2006). *Student financing of undergraduate education: 2003–04, with a special analysis of the net price of attendance and federal education tax benefits* (NCES 2006-186). Washington, DC: National Center for Education Statistics.
- College Board (2008). *Trends in student aid*. New York, NY: Author.
- Council for Adult and Experiential Learning (2008). *Adult learning in focus*. Chicago, IL: Council for Adult and Experiential Learning in partnership with the National Center for Higher Education Management Systems (NCHEMS). Retrieved February 24, 2009 from http://www.cael.org/pdf/State_Indicators_Monograph.pdf
- Donaldson, J., & Townsend, B. (2007). Higher education journals' discourse about adult undergraduate students. *Journal of Higher Education*, 78(1), 27-50.
- Horn, L. (1996). *Nontraditional undergraduates, trends in enrollment from 1986 to 1992 and persistence and attainment among 1989–90 beginning postsecondary students* (NCES 97–578). U.S. Department of Education, NCES. Washington, DC: U.S. Government Printing Office.
- Kazis, R., Callahan, A., Davidson, C., McLeod, A., Bosworth, B., Choitz, V., et al. (2007). *Adult learners in higher education: Barriers to success and strategies to improve results*. US Department of Labor Employment and Training Administration. Occasional Paper 2007-03. Boston, MA. Jobs for the Future.
- Lumina Foundation for Education (2007). *What we know about access, persistence, and success for adult learners in postsecondary education: A review of contemporary literature*. Retrieved July 13, 2007 from http://www.luminafoundation.org/research/what_we_know/
- National Association of State Scholarship and Grant Aid Programs (NASSGAP, 2005). *35th annual survey report on state-sponsored student financial aid: 2003-04 academic year*.
- National Center for Education Statistics (NCES, 2008). *Digest of education statistics 2007*. Washington, DC: Author. (NCES 2008022).
- Pusser, B., Breneman, D. W., Gansneder, B. M., Kohl, K. J., Levin, J. S., Milam, J. H., & Turner, S. E. (2007). *Returning to learning: Adults' success in college is key to America's future*. Indianapolis, IN: Lumina Foundation for Education, New Agenda Series.
- Seftor, N.S. & Turner, S.E. (2000). *Back to school: Federal aid policy and adult college enrollment*. *Journal of Human Resources*, 37, 336-352.
- Stringer, W.L., Cunningham, A. F., O'Brien, C. T., & Merisotis, J. P. (1998). *It's all relative: The role of parents in college financing and enrollment*. (New Agenda Series, Volume 1, Number 1). Indianapolis, IN: USA Group Foundation.

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):

Average Institutional Grant Per Student

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:

$$\ln\left(\frac{P}{1-P}\right) = \alpha + \beta_1x_1 + \beta_2x_2 + \dots + \beta_kx_k$$

In this formula, P is the probability of a student receiving a tuition discount, $\ln\left(\frac{P}{1-P}\right)$ is the natural logarithm of the odds of P , α is the Y intercept, β 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 ($\alpha < .001$) 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 are 1.717 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

	Percent of all students receiving discount	RESIDENT STUDENTS				NON-RESIDENT STUDENTS			
		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

	In-state tuition	AVERAGE DISCOUNT RATE					PERCENTAGE OF RESIDENTS* RECEIVING DISCOUNT				
		\$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	
Compared to independent students	<i>Intercept</i>	0.307	-	-	
	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 $\alpha < 0.10$. ** significant at $\alpha < 0.05$. *** significant at $\alpha < 0.01$

Graduate Student Persistence: Evidence from Three Decades

By Suchitra Gururaj, Julian Vasquez Heilig, and Patricia Somers

Suchitra Gururaj is a doctoral student at University of Texas at Austin.

Julian Vasquez Heilig is assistant professor of educational policy at University of Texas at Austin.

Patricia Somers is associate professor of higher education at University of Texas at Austin.

A previous version of this paper was presented at the 2007 Association for the Study of Higher Education Conference.

This article conducts a meta-analysis of results of studies by Andrieu (1991), DeAngelis (1998), and Liseo (2005) to assess changes over time in the effects of financial aid and other factors on graduate student persistence. A descriptive review of the studies finds that combination aid packages encouraged persistence in 1987 (Andrieu, 1991), while any aid promoted persistence in 1993 (DeAngelis, 1998). In 2000, loans and assistantships, as well as tuition increases, were related to persistence (Liseo, 2005), demonstrating that available aid may offset tuitions at private institutions. The individual studies demonstrate the significance of differing financial variables during different time periods. The meta-analysis demonstrates that every form of aid is significant in promoting graduate student persistence and that grants, in particular, offer the greatest bang for the buck among this population. These findings present policy implications for improving graduate student retention.

Educational policy researchers in the United States have tried to assess recently how increased individual educational attainment not only contributes to personal wealth and opportunities but also enhances the potential of individuals to contribute in a financially and socially responsible manner to their communities (see, for example, Texas State Data Center, 2007; Watts, 2007). The call for increased educational attainment seems to have been answered; in fact, in the academic year 2004-2005, approximately 2.5 million students were enrolled in graduate or first professional programs in the United States. Notably, participation has increased by 59 percent since the mid-1970s (NCES, 2007, Table 210). Moreover, the number of participants in post-baccalaureate programs is projected to increase through 2015. However, there is little research on the subsequent persistence and graduation of this burgeoning group of enrolled graduate students. There is no national database that tracks graduate student attrition, and colleges and universities often lack systems to follow the progress of graduate students at the institution (Bair & Haworth, 2004). While 2,755,402 students were reported to have received any degree by U.S. public and private institutions in 2003-2004, and 48,378 of those students received doctoral degrees (NCES, 2007, Table 304), little is known of the graduate students who did not persist through to masters or doctoral degree attainment. This group of dropouts and stop outs is not insignificant; for example, approximately 50 percent of all doctoral students will not persist to graduation (Isaac, 1993; Tinto, 1993).

The persistence of students who enroll in graduate programs is certainly important in light of individual students' educational aspirations. But institutions that employ resources to carefully cull their entering classes also lose when graduate students drop out. Understanding the effects of financial

aid on graduate student attendance, may encourage institutions to promote better enrollment management at the graduate level (Ehrenberg, 2002). According to Bair and Haworth's (1999) "meta-synthesis" of literature regarding graduate student persistence, attrition varies depending on the field and program of study, as well as departmental culture and overall difficulties with dissertation completion. In response, institutions invest funding in graduate students, not only in the form of social and academic supports, but also in the form of financial aid.

Aid for graduate and professional students has always been distinct from undergraduate student aid programs. In addition to self-funding and tuition reimbursement from employers, graduate students are supported by institutional funds, federal grants and contracts, and foundation/corporate funds that are awarded in the form of fellowships, scholarships, and assistantships. While both undergraduate and graduate students are eligible for federal student loans, the loan limits are different for each.

Moreover, graduate student retention may have been affected by federal financial aid policy shifts over the last thirty years. Specifically, in the 1970s, the nation expanded grant programs. Later, the Reagan administration retreated from funding expansion for educational programs by placing more fiduciary responsibility on families for higher education costs. The 1992 reauthorization of the Higher Education Act prioritized the lack of access for low-income students, while also increasing the loan availability for middle-income students. This reauthorization introduced unsubsidized loans that had no income restriction. In doing so, the legislation encouraged the accumulation of debt. The late 1990s once again focused on affordability for the middle-class, this time concentrating on providing tax relief. President Clinton's Lifetime Learning Credits provided families with a federal income tax credit. Over these two decades, tuition costs and loan availability rose, thereby encouraging both access and debt simultaneously.

Nonetheless, research has rarely investigated the effects of varying types of financial assistance on graduate student persistence over time. The limited research points out that aid that does not require students to work (fellowships and grants) or enables them to work within their fields (assistantships) encourages persistence more than other types of aid, or no aid at all (Bair & Haworth, 1999). This article analyzes the results of the existing studies of National Postsecondary Student Aid Study (NPSAS), the nationwide study conducted by the U.S. Department of Education describing how students pay for postsecondary education, to assess the effects of financial aid on graduate student persistence.

This article, moreover, seeks to highlight the characteristics of financial aid across three decades that are the most influential in the persistence of graduate students and concludes by outlining subsequent policy implications.

Literature Review

While there is much research on the persistence of undergraduates, much less exists on the persistence of graduate students. Since the 1970s, models of undergraduate persistence have been grounded in both economic and sociological theory (Astin, 1975, 1977; Bean, 1981, 1982; Pascarella & Terenzini, 1977, 1979; Tinto, 1993).

Although Tinto (1993) and others (Thomas, Clewell, & Pearson, 1991) have reported similar findings regarding undergraduate and graduate persistence, Tinto clarifies that differences between graduate and undergraduate students involve the strength of social and academic integration. For doctoral students in particular, Tinto drew on anthropological models of integration, stating that doctoral students pass through three distinct phases—coursework, candidacy, and dissertation—and that the persistence challenges vary for each of those phases. Students who are able to attend full-time are more quickly integrated and are likely to finish. It follows that students who take longer to finish their programs of study are less likely to complete their degrees.

The two-stage model developed by Girves and Wemmerus (1998) for studying graduate student persistence asserts that for master's students, departmental and student characteristics, financial support, and perception of faculty influenced persistence. Grades, however, are integral to master's students' progress. Because grading standards can vary with programs, choice of graduate program becomes critical for these students who may be encouraged or discouraged by their performance against the grading standards in their programs. For doctoral students, in contrast, performance on qualifying exams, ability to do independent research, and financial support all influence whether a student persists. According to Girves and Wemmerus, the graduate student's perception of his or her relationship with a mentor is also critical to persistence.

Lovitts (2001) examined the institutional factors that influence graduate persistence. Students who dropped out were less likely to have integrated themselves into the academic and social life of their departments, including engaging in strong professional relationships with faculty. Lovitts asserted that institutions can encourage persistence by combining academic challenge with the support of departmental faculty.

While some research on graduate student persistence has entered the literature in recent years, there continues to be a shortage of research on the specific influence of financial aid on graduate student persistence. Tinto (1993) suggested that financial aid packaging policies are more conducive to recruitment and persistence in the early years of graduate school than persistence to degree completion. Moreover, short-term changes in financial aid can have long-term ramifications on persistence (Tinto, 1982, 1993). In a similar vein, both Kallilo (1995) and Ethington and Smart (1986) cited financial aid as a variable in the choice of which graduate school to attend, acknowledging that it might create long-term effects. In their analysis of already enrolled graduate students, Girves and Wemmerus (1998) discussed the effects of financial aid in the context of its ability to promote critical interaction and engagement, specifically by doctoral-level students. They indicated that students with

teaching and research assistantships were more likely to seek involvement in their programs and complete their doctorates. Graduate assistants gain the benefit of engagement with faculty members and are therefore socialized faster. While their course of study determined the importance of financial support for doctoral students (as opposed to the lesser influence on master's students), they recommend further study on the effects of different types of financial aid offered.

The three studies compared here (Andrieu, 1991; DeAngelis, 1998; Liseo, 2005) offer longitudinal insight into the specific effects of financial aid packaging on the persistence of graduate students. All three studies develop inferential statistical models by utilizing national data from NPSAS to examine within-year persistence of graduate and first-professional students. Andrieu (1991), who used NPSAS:87, found that graduate students who received grants, loans, and assistantships were more likely to persist. Those who received only one type of aid were less likely to persist than those students who had no aid. Students enrolled part time who worked were more likely to persist than those who were enrolled full time and who did not work. Finally, she suggested that tuition increases negatively affected persistence.

DeAngelis (1998) replicated the Andrieu study using NPSAS: 93 and added several new variables, including debt load. She developed six additional models to examine the influence of financial aid on within-year persistence, three of which used variations in financial aid packaging and three of which used net cost (price variables with aid amounts). She found that price response and net cost models were the most predictive. She concluded, "[R]eceipt of financial aid significantly and positively influenced the within-year persistence of graduate and professional students [in 1993]" (p. 138). She concurred with Andrieu that students who received all three types of aid (i.e., grants, loans, and work) were more likely to persist.

Liseo (2005) added tax credits to the existing models and performed analyses on various subpopulations using NPSAS:2000. She found that aid packages were positively associated with persistence. In contrast to the other NPSAS studies, Liseo found some differential effects by race and gender. For Asian students, aid was positively associated with persistence. For African American students, no aid variables were significant. Female students were more likely to persist if they received increased amounts of loans and assistantships.

This article draws upon three studies (Andrieu, 1991; DeAngelis, 1998; Liseo, 2005) to explore how financial aid has affected the persistence of graduate and first professional students from 1987 to 2000, and discusses financial aid policy implications for the future.

Conceptual Framework

A model of graduate student within-year persistence was developed for this study based upon previous graduate student persistence research by Andrieu, St. John, and colleagues (Andrieu, 1991; Andrieu & St. John, 1993; DeAngelis, 1997; Liseo, 2005; St. John & Andrieu, 1995; St. John, Oescher, & Andrieu, 1992). As suggested by Hu and St. John (2001), the outcome variable considered in each of the three NPSAS studies is within-year persistence, which is considered as a proxy for the sufficiency of financial aid. That is, students who drop out mid-year often believe they do not have sufficient funding to complete the school year. The students drop out in frustration or stop out while trying to save funds to return to college. As previously noted, Tinto (1993) indicates that the longer students take to finish their programs of study, the less likely they are to complete their degrees. Students who enroll in consecutive academic terms do not prolong their progress by stopping out.

This paper considers the value of within-year persistence to evaluate the success of financial aid in promoting graduate student persistence on a yearly basis. Unlike undergraduates, graduate students often compete for funding on a year-to-year basis, and that funding may be responsible for the pace of progress toward degree completion. Moreover, students who stop out or drop out, due to lack of funding or any other reason, are unlikely to persist through to graduation. A study of the effectiveness of within-year persistence reveals the ramifications of adequate or inadequate financial assistance on graduate students' ability to persist in the longer term.

Based on the previous graduate student persistence research, and research on attainment drawn from economics (Baird, 1993; Cabrera, Nora, & Castaneda, 1992; Farrell & Rusbult, 1981; Olivas, 1995) and sociology (Blau & Duncan, 1978; Sewell & Shah, 1967), the models introduced in the studies by Andrieu (1991), DeAngelis (1998), and Liseo (2005), as well as in the current meta-analysis, include background, college experience, field of study, price, aid, and previous debtload as factors.

Method

Participants

Andrieu's study (1991) used a sample of students from the National Postsecondary Student Aid Survey (NPSAS) of 1987. The sub-sample included 6,559 masters, doctoral, and professional degree students from that survey: 2,850 from public schools and 3,709 from private schools. The gender distribution was 3,558 men and 3,001 women.

DeAngelis (1998) used the 1993 survey (NPSAS:93), drawing on a sample of 13,399 graduate and professional students from that database, including 9,302 graduate students and 4,097 professional students enrolled full- and part-time at public and private universities. Her sample was comprised of 6,573 men and 6,758 women (68 cases lacked gender identification).

Liseo's study (2005) drew on a sample from NPSAS:2000, which included 4,020 graduate and professional students, 3,360 attending full- and part-time at public and private universities. Of the sample, 2,152 were women and 1,868 were men.

Methodologies of the Studies

Andrieu's seminal study (1991) developed a logistic regression model for research on graduate student persistence. The model measured within-year persistence, used as a proxy for the sufficiency of financial aid (Hu & St. John, 2001) and conducted a stepwise logistic regression to test the following factors:

- Background: ethnicity, gender, age, income, dependency status, employment status, and mother's education
- Graduate experience: Grade point average (G.P.A.), full- or part-time status, and level of enrollment (masters or doctoral), type of institution (public or private)
- Expected earnings by major (based on the salary survey of graduates in the study year)
- Individual aspirations: postsecondary plans
- Financial commitment: financial aid and its packaging

In regard to financial commitment, Andrieu's study was the first to examine whether the receipt of any aid influenced within-year persistence, how price responsive students were, and whether specific aid packages influenced within-year persistence.

DeAngelis (1998) replicated Andrieu's study and added debt load to her model. In addition to the basic within-year persistence model developed by Andrieu, DeAngelis developed six alternative financial aid models to assess the influence of financial aid on graduate and professional students. These six models addressed financial aid packaging; aid packaging, tuition and fees, aid packaging regarding repayment, price response, debt load, and net cost. Moreover, the aid packaging variations included seven variations, including grants only, loans only, assistantships only, grants and loans, grants and assistantships, loans and assistantships, and a combination of the three. The second aid packaging model included a price variable in regard to tuition and fees, while the third packaged aid in regard to repayment obligations.

Liseo (2005) replicated the models of both prior graduate persistence studies while adding tax credits to reflect the 1997 inclusion of Lifetime Learning Credits in tax law. She also assessed the influence of the model's variables by gender and ethnicity. In describing the demographics of her sample, Liseo wrote that 68.7 percent of the sample received aid. Notably, debt load was highest in the African-American population. Like Andrieu (1991) and DeAngelis (1998), Liseo used logistic regression to systematically add variables to test model parsimony.

Statistics

While Ordinary Least Squared (OLS) regression is used to describe the relationship between a dependent variable and the independent variables, the technique is based on two assumptions about the data. First, variables are assumed to be continuous. The assumption is that the relationship between an outcome variable and independent variables is expressed by a straight line.

However, both assumptions are violated when the outcome is dichotomous (Cabrera, 1994). Since the outcome is dichotomous (the student persisted or not) in the persistence studies, logistic regression is used in place of OLS. For logistic regression, the resulting graph of the relationship is an S-shaped curve bounded by 0 and 1, and not the straight line produced by OLS regression.

The basic logistic regression equation is:

$$P = E(Y | X) = \frac{\exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}{1 + \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}$$

Whatever the values of the constants β_i or the variables X_i , P is between 0 and 1 can also be thought of as a probability measure that the outcome variable will be 1 (yes). Like OLS, the relationship between the outcome and explanatory variables is expressed in terms of beta weights. Likewise, there are a pseudo R^2 , Somers' D , and goodness of fit measures for logistic regression, which are used in the three studies presented here. The beta coefficients are converted to delta-p's, a standard measure of change (Peterson, 1984) to make the data more user friendly. All three studies analyzed here used logistic regression and reported the results in both beta weights and delta-p's.

Results

The results for the full models in all three studies are presented in Table 1. In Andrieu's study, set in the economically uncertain 1980s, full-time attendance negatively influenced within-year persistence. Andrieu's analysis of financial aid packaging resulted in critical findings. She determined that students, especially at private institutions, were price sensitive to increases in tuition, such that it decreased persistence. While private college tuitions are usually higher, this finding may indicate that in the 1980s at least, grants and scholarships did not keep up with tuition increases.

When controlling for the price of rising tuition and its effects at all types of institutions, however, Andrieu found that the only configuration of aid that positively influenced graduate student persistence was one with grants, loans, and assistantships, as opposed to any of the aid types by themselves. At the same time, while no single aid variable was positively significant, the receipt of any aid was significant. Table 1 shows that assistantships alone, in fact, decreased persistence numbers because students could seldom live on assistantship salaries alone. This finding was at odds with that of Girves and Wemmerus (1988) who found that graduate assistantships were most beneficial to students because they promoted academic and social integration. Not only did a \$1,000 increase in tuition decrease the probability of within-year persistence in the Girves and Wemmerus study, but each \$1,000 increase in assistantship earnings did as well, reflecting the difficulties in keeping up with the student perceptions of affordability. Moreover, when adjusting for packages of aid including tuition, students with higher expected incomes were expected to persist more often.

Table 1: Summary of Persistence (Full Logistic Stepwise Regression Models)

		Background	Graduate Experience	Aspirations	Expected Earnings	Financial Commitment
Andrieu	N/S	Race Age Gender Income Status	GPA Level		Expect	
	Positive	Mother Some College** Working*				
	Negative	Mother Advanced Degree**	Full-time** Continue** Private**			Aid** Tuition**
DeAngelis	N/S	Gender Income	Other Majors		Expect	
	Positive	Latino** Mother Some College** Age**	Level** Full-time** Professional Major** Allied health** Business** Engineer** Public**	Masters**		Aid**
	Negative	Married**	GPA** Other grad Degree** No Major**			
Liseo	N/S	Age Race Work Income Dependents Married	Major Type Level Full-time			
	Positive		GPA*			Tuition* Aid*
	Negative					

* $p < .05$. ** $p < .01$. N/S denotes variables that were not significant.

DeAngelis (1998) determined that a combination of grants, loans, and assistantships had significant influence on within-year persistence in 1993. Using the six models of alternative aid configurations, DeAngelis found that, contrary to Andrieu's (1991) results, all aid packages, except those including assistantships, were positively significant. Further, a combination of grants and loans increased the probability of persistence. She found that both "free" (grants/scholarships) and "obligatory" (loans and assistantships) aid positively influenced persistence. That students seemed willing to incur debt with obligatory aid seems to confirm Tinto's theory that integration into the culture of the university encourages persistence even in the face of having to assume loans to attend college. DeAngelis found that in \$1,000 increments, students were more likely to persist at lower levels of tuition. However, the coefficient for tuition (.0191) remained negative and significant when financial aid was included in the model. The price response model demonstrated the same idea: an increase of \$1,000 of aid received in the form of grants, loans, or assistantships, increased the probability of within-year persistence. Debt load (i.e., debt from previous year's loans) did not have a significant influence by itself; however, when combined with aid and assessed as net cost, it was positively significant in promoting persistence. DeAngelis suggested that graduate and professional students are primarily concerned with a long-term investment and will incur debt in the course of making this investment. DeAngelis' results, indicated that, once a student has a relationship with an institution, that student is willing to spend more money to continue the relationship.

In Liseo's final model, financial variables were important. Tuition was significant in that, for each \$1,000 increase in tuition, all students were more likely to persist. Likewise, for each \$1,000 increase in loan aid or increase in assistantship aid, all students were more likely to persist; she concluded that perhaps these students were receiving sufficient support. Liseo also found that, among males, a \$1,000 increase in tuition or in assistantship funding both increased the likelihood to persist. Women responded in kind to those two sources, as well as to a \$1,000 increase in student loans. While no variables were significant for the African American population, among the Latino population an incremental increase in tuition (and aid) encouraged persistence. For each \$1,000 increase in tuition, Asian students were more likely to persist; however, each incremental increase of debt load discouraged their persistence. These associations of tuition with increased persistence, said Liseo, may indicate that students who are invested in an institution will stay on (as DeAngelis found) or perhaps that many of these students attended more expensive private institutions where generous aid offset increases in tuition. The Lifetime Learning Tax Credits that Liseo added to the model did not have any impact on students' persistence. She suggested that the \$1,000 tax credit, to be claimed after tuition and fees are paid, was not substantial. Alternatively, in 2000, many students may not have been aware of the availability of these tax credits.

The comparison of the results from the 1987, 1993, and 2000 data shows a remarkable transformation. In 1987 (Andrieu, 1991), no single aid variable was significant, while the effect of aid packages was positively significant. DeAngelis

(1998) found that a combination of grants, loans, and assistantships, as well as any aid, were significant and positive in 1993. Liseo (2005), in contrast with Andrieu and like DeAngelis, found that five aid variables were significant; however, she found that two were negative (grants and graduate debtload) and three were positive (loans, assistantship, and tuition and fees).

Financial Aid Effect Magnitude Analysis

We conducted a meta-analysis in order to précis the changes in the significance of financial aid variables over time in each of the NPSAS studies. Meta-analysis is a “study of the studies” (Raudenbrush & Bryk, 2002, p. 205) that enables the summary of a collection of studies by “a single common-effect size estimate” (p. 205). Alternatively, and in this case, a meta-analysis offers possible explanations of why results of like studies may vary. The meta-analysis utilizes a combined estimation method. Effect magnitude analyses are used to consider the degree of relation between variables. The variables in the financial aid studies considered here are measured on a scale of dollars in thousands. As a result, the raw regression coefficients for the variables can be combined directly (Greenwald, Hedges, & Lane, 1994). This procedure for combining the logistic regression coefficients includes simple averaging as the data analysis technique.

The delta-p statistic (see explanation under method) is useful for conducting the effect magnitude analysis as it allows the researcher to make comparisons between each of the research studies due to the use of the same statistic for the variables in each of the studies. The results of the effect magnitude analysis, as defined by the averaged significant effect sizes for each of independent variables are noted in Table 2.

Table 2: Mean Regression Coefficients ($p \leq .05$)

Input Variable	Equations	(Studies)	Full Sample
Any aid	(2)	(2)	.084
Total grants	(2)	(2)	.186
Total loans	(5)	(2)	.076
Total assistantships	(4)	(2)	.093
Tuition and fees	(4)	(3)	.030
Undergraduate debt	(0)	(2)	--
Graduate debt	(1)	(1)	--

The mean standardized delta-p regression coefficient for total grants that a graduate student received computed over all studies is .186. This coefficient is the largest of the effects and translates to an 18 percent increase for each \$1,000

for the probability retention of a student in graduate school. By the standards of educational aid interventions, this is a fairly large effect.

The mean effect obtained in the studies for “any aid” provided to students and total assistantships also showed large outcome effects. Notably there were some positive and some negative effects. Together, the any aid coefficients showed about a 9 percent increase in the probability of retention of graduate students.

The total amount of loans student held also showed a positive effect on graduate persistence. Overall, for every \$1,000 in loans, students were 7 percent more likely to persist in graduate school. The mean effects for tuition also appear to be positive across each of the studies. What this suggests is that for each increase of \$1,000 in tuition, there is an increased probability of 3 percent for graduate student retention. There is a concomitant increase in the cost of tuition and financial aid offered, and this would seem to be particularly true at highly selective colleges.

Taken together, the effect size analyses show that several financial aid variables have positive effects for the retention of students in graduate school. The effects of the financial aid variables average to be positive in all cases. The typical effects for debt are mixed and non-significant. The studies considered in this meta-analysis of graduate school persistence and financial aid did not find debt significant. Yet, higher tuition is significant. This finding is not necessarily intuitive with the established research literature on retention in undergraduate programs. When considering other background variables (major type, marital status, economic status), these three studies did not find debt to be a significant predictor of graduate student retention. Perhaps a control variable measuring prestige would illuminate whether tuition and total aid may actually be proxies for institutional selectivity.

Discussion and Policy Implications

What is interesting about these studies is that they examine the comprehensive NPSAS data at a point in each of the past three decades. This longitudinal view of financial aid for graduate student persistence provides the opportunity to consider questions of policy over the long term. Andrieu is positioned in the late 1980s, during a period in which the Supplemental Loan to Students was created specifically to provide loans to graduate and professional students. As we look forward from Andrieu (1987) to DeAngelis (1993), we would expect the availability of loans would have led to greater student persistence. In fact, the analysis finds that during the intermediary years between studies (1987 and 1993) more aid in the form of loans was made available to students and positively influenced the retention of graduate students. Across this time period, we find that total loan amounts do significantly predict graduate student persistence, and that the availability of loans appears to have encouraged persistence as students were better able to meet their financial responsibilities. However, the long-term unintended consequences of large amounts of debt on graduate students is a highly salient issue that requires more study, but lies outside of the purview of this paper.

Rapidly escalating tuition in the 1980s and 1990s also appears to affect within-year persistence. While greater levels of tuition and aid do predict graduate student success, as noted previously, more work needs to be done to understand whether these variables are measuring institutional selectivity or whether rises in tuition do actually increase graduate student persistence for some currently unknown reason.

These findings suggest several possible implications for institutions of higher education. The increased amount of aid in the 1980s and 1990s meant that a package with any type of aid would assist graduate students. There are also possible implications for recruitment of students in fields that will have lower expected incomes. Regardless of program, it appears that when background characteristics are controlled for, packages with different types of aid have the potential to increase graduate student persistence. However, this does not relieve institutions from continuing to find ways to promote equity and encourage subgroup participation and success in graduate programs via the aid process. In fact, the finding that various background characteristics do not necessarily predict success across studies when aid variables have been controlled for may suggest that institutions of higher education are able to overcome the traditional barriers to graduate student persistence when they provide tailored and appropriate aid for students from heterogeneous backgrounds.

Notably, Liseo (2005) is positioned in the years after the legislative enactment of the Clinton higher education tax credits. Liseo did not find the tax credits to be significant predictors of graduate student persistence. However, the recency of the tax policy shift and difficulties initially experienced by students in claiming the credit might necessitate a reanalysis of the credits in the current environment. . If the Lifetime Learning Credits are now more well-known and better utilized, they could have a different impact on graduate student persistence in new models.

Ultimately, the most important finding in this meta-analysis is that grants are the largest predictor of student success in graduate school regardless of background characteristics. In the policy environment since the terrorist attacks of September 11, 2001, funding for higher education institutions has declined as national security considerations demand more money (Somers et al., 2004). Our findings suggest that the biggest improvement in graduate student retention may be found in increasing federal aid to institutional grant programs. The effect is about double that of other aid types. A large increase of direct-to-student federal grants is contrary to the current political winds, but it appears to offer the greatest potential gain for graduate student persistence.

Limitations

Several limitations in this meta-analysis study must be considered. The primary limitation is the small body of research that broadly and quantitatively examines the impact of aid on graduate student persistence. As a result, this meta-analysis only considers the NPSAS studies for the magnitude effect analysis. Further, the studies examined do not include p-values, precluding the ability to conduct a combined significance test meta-analysis. Additionally, because all three studies are involved in the analyses, the most influential study cannot be dropped from the average alpha-p coefficients to provide a more robust and balanced measure of effects. As more NPSAS studies become available, some of these concerns can be integrated into new models to be considered in future meta-analyses.

Future research would also benefit from the ability to examine year-to-year persistence in addition to within-year persistence. Rather than creating a snapshot measure of persistence, future studies can take a longer view of graduate student success by using graduation as the dependent variable. While the examined studies do not find debt burden to be a significant predictor of within-year graduate student success, future models that examine graduation, within-year graduate student persistence, and variables that represent workforce outcomes are especially important in light of the rapidly escalating costs of graduate school. It is an open question whether the context of the 1980s and 1990s in regards to the relationship of debt to persistence would remain non-significant in 2010 in light of the 2007-2009 recession and continued economic challenges.

As previously discussed, a control variable for different Carnegie education institution types was used but may not isolate effects in the data representing the complex interaction between financial aid and tuition costs at institutions with differing levels of prestige. Program specific evaluations within these institutional contexts may also produce interactions that the current studies did not consider.

Conclusion

While considerable research has been undertaken to examine the social and academic supports integral to graduate student persistence, this study begins to address the gap in the literature about the effects of financial aid and other financial considerations on graduate student within-year persistence. Because increased educational attainment contributes to both personal and community wealth as well as to concomitant social benefits, this study suggests that institutions and policy makers focus on grants as a means to prevent attrition and promote persistence. Further research should delve deeper into the critical role of funding in graduate student enrollment, persistence, and subsequent degree completion.

References

- Andrieu, S. C., & St. John, E. P. (1993). *The influence of prices on graduate student persistence*. *Research in Higher Education*, 34(4), 399-425.
- Andrieu, S.C. (1991). *The influence of background, graduate experience, aspirations, expected earnings, and financial commitment on within-year persistence of students enrolled in graduate programs*. Unpublished doctoral dissertation, University of New Orleans.
- Astin, A.W. (1975). *Preventing students from dropping out*. San Francisco: Jossey-Bass.
- Astin, A. W. (1977). *Four critical years: Effects of college on beliefs, attitudes and knowledge*. San Francisco: Jossey-Bass.
- Bair, C.R., & Haworth, J.G. (1999). *Doctoral student attrition and persistence: A meta-synthesis of research*. Paper presented at Association for Study of Higher Education Annual Meeting, San Antonio, TX.
- Bair, C.R., & Haworth, J.G. (2004). *Doctoral student attrition and persistence: A meta-synthesis of research*. In J.C. Smart (Ed.), *Higher Education: Handbook of Theory and Research*, Vol. XIX (pp. 481-534). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Baird, L. (1993). *Increasing graduate student retention and degree attainment*. San Francisco: Jossey-Bass.
- Bean, J. P. (1980). *The synthesis and test of a causal model of student attrition*. *Research in Higher Education*, 12(2), 155-187.
- Bean, J. (1982). *Conceptual models of student attrition: How theory can help the institutional researcher*. In E. Pascarella (Ed.), *Studying student attrition* (New Directions in Institutional Research series no 36, pp. 17-33). San Francisco: Jossey-Bass.
- Blau, P. M., & Duncan, O.D. (1967). *The American occupational structure*. New York: John Wiley and Sons.
- Cabrera, A. F. (1994). *Logistic regression analysis in higher education: An applied perspective*. In J. C. Smart (Ed.), *Higher education: Handbook of Theory and Research*. New York: Agathon Press.
- Cabrera, A. F., Nora, A., & Castaneda, M. B. (1992). *The role of finances in the persistence process: A structural model*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- DeAngelis, S. (1998). *The influence of price and price subsidies on within-year persistence of graduate and professional students*. *Journal of Student Financial Aid*, 28, 41-57.
- Ehrenberg, R.G. (2002). *Tuition Rising: Why Colleges Cost So Much*. Cambridge: Harvard University Press.

- Ellis, E. M (2001). *The impact of race and gender on graduate school socialization, satisfaction with doctoral study and commitment to degree completion*. *Western Journal of Black Studies*, 25(1), 30-46.
- Ethington, C. A., & Smart, J. C. (1986). *Persistence to graduate education*. *Research in Higher Education*, 24, 287-303.
- Farrell, D., & Rusbult, C. E. (1981). *Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact*. *Organizational Behavior & Human Performance*, 28(1), 78-95.
- Girves, J.E., & Wemmerus, V. (1988). *Developing models of graduate student degree progress*. *Journal of Higher Education*, 59, 163-189.
- Greenwald, R., Hedges, L.V., & Laine, R.D. (1994). *When reinventing the wheel is not necessary: A case study in the use of meta-analysis in education finance*. *Journal of Education Finance* 20(1), 1-2.
- Hu, S., & St. John, E.P. (2001). *Student persistence in a public higher education system: Understanding racial and ethnic differences*. *Journal of Higher Education* 72(3), 265-286.
- Isaac, P. D. (1993 Winter). *Measuring graduate student retention*. *New Directions for Institutional Research*, 13-25.
- Kallio, R.E. (1995). *Factors influencing the college choice decisions of graduate students*. *Research in Higher Education*, 36(1), 109-124.
- Liseo, P.A. (2005). *Graduate and professional student within-year persistence and financial aid*. Unpublished dissertation, University of Missouri – St. Louis. UMI: AAT3178912.
- Lovitts, B.E. (1996). *Who is responsible for graduate student attrition—The individual or the institution? Toward an explanation of the high and persistent rate of attrition*. Baltimore: University of Maryland. (ERIC Document Reproduction Service No. ED399878).
- Lovitts, B.E. (2001). *Leaving the Ivory Tower*. Lanham: MD: Rowman and Littlefield.
- National Center for Education Statistics. (2006). *Digest of Education Statistics: 2006*. Retrieved June 1, 2007 from http://nces.ed.gov/programs/digest/d06/ch_3.asp
- Olivas, L. (1995). *Arizona State University: An historical review of minority students, faculty, and staff*. Tempe: Office of Institutional Analysis.
- Pascarella, E.T., & Terenzini, P.T. (1979). *Interaction effects in Spady's and Tinto's conceptual models of college dropout*. *Sociology of education*, 52, 197-210.
- Pascarella, E. T., & Terenzini, P. T. (1977). *Patterns of student-faculty interaction beyond the classroom and voluntary freshman attrition*. *Journal of Higher Education*, 48(5), 540-552.

- Pauley, R., Cunningham, M., & Powell, T. (1999). *Doctoral student attrition and retention: A study of a non-traditional Ed.D. program*. *Journal of College Student Retention*, 1, 225-238.
- Peterson, T. (1984). *A comment on presenting the results of logit and probit models*. *American Sociological Review*, 50(1), 130-131.
- Raudenbush, S.W., & Bryk, A.S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- St. John, E. P. & Andrieu, S. C. (1993). *The influence of prices on graduate student persistence*. *Research in Higher Education*, 34, 399-425.
- St. John, E. P., & Andrieu, S. C. (1995). *The influence of price subsidies on within-year persistence by graduate students*. *Journal of Higher Education*, 29(2), 143-168.
- St. John, E.P., Oescher, J., & Andrieu, S. (1992). *The influence of prices on within-year persistence by traditional college-age students in four-year colleges*. *Journal of Student Financial Aid*, 22, 27-38.
- Sewell, W. H., & Shah, V.P. (1967). *Socioeconomic status, intelligence, and the attainment of higher education*. *Sociology of Education*, 40, 1-23.
- Somers, P., Wild, R., Biermann, S., Wetstein, K., Deloach-Packnett, G., & Biddix, P. (2004, November). *In search of Generation 9/11*. Paper presented at Association for Study of Higher Education Annual Meeting, Kansas City, MO.
- Texas State Data Center and Office of the State Demographer. Retrieved April 20, 2007 from <http://txsdc.utsa.edu/presentations>.
- Thomas, G. B., Clewell, B., & Pearson, W. (1987, September). Case study of major doctoral producing institutions in recruiting, enrolling, and retaining Black and Hispanic graduate students. A report to the Graduate Record Examination Board, Princeton, NJ.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.
- Watts, A.L. (2001). *Education and the common good: Social benefits of higher education in Kentucky*. Frankfort, KY: Long-term

Guidelines for Authors

The *Journal of Student Financial Aid* invites the submission of manuscripts that report original research or discuss policy or position issues. The Editorial Board also welcomes correspondence about financial aid issues or articles and letters appearing in the Journal.

Writing and Organizing Manuscripts

Authors should present their material in clear and concise language appropriate for the general reader as well as financial aid administrators. Attention should be given to the use of proper English. The presentation and development of the theme should be orderly, avoiding irrelevancies and wordiness. Generally, articles are structured into segments with headings that suggest the logical progression from introduction to conclusion. Headings reflect the manuscript organization and denote the relative importance of each topic.

Research Articles

A research article should begin with an introductory statement of purpose, which does not have a heading. It should proceed with a discussion of recent and related research, followed by a presentation of the methodology. The analysis of the evidence follows, then conclusions and implications directly related to the evidence presented.

Statistics, Charts, and Graphs

Statistical data should be summarized in the text. Figures and tables must be clear, comprehensible, and used only when they add to the presentation or when they reduce the need for a lengthy discussion in the manuscript. Particularly complex research (including statistical terminology) should be explained in an understandable way for readers not fully acquainted with research methodology and analysis. Complicated graphs should be submitted with actual plotting points indicated.

Issue Articles

An issue article should address a position or a perspective on a student aid policy or topic. The headings should reflect the organization of the article. The author presents the issue in the introduction, which is not headed. Unlike the components of a research article, the sections of an issue article are arranged by relationship. The sections display the perspectives of others, the evidence and logical argument, and positive and negative implications. The conclusion should suggest next steps or otherwise finalize what has been introduced and argued earlier.

Style Manual

Questions of style should be referred to the most recent edition of the Publication Manual of the American Psychological Association (APA). Although APA style has been historically oriented toward research, the APA stresses the adaptability of the style to more theoretical manuscripts.

Authors unfamiliar with APA style should read the first chapter of the manual, "Content and Organization of a Manuscript," from which the primary points of these guidelines are derived.

Copies are available in most college and university bookstores or may be ordered by calling the Order Department of the American Psychological Association at (800) 374-2721.

Footnotes

Footnotes are generally avoided because they distract the reader. Reference citations are never footnoted, but are included in a reference list. Whenever possible, information germane to an article should be integrated within the text. Necessary supporting documentation may be included as an appendix. Table notes, author identification notes, and copyright permission footnotes are acceptable and are addressed in the APA Publication Manual.

References

The use of the APA reference is simple and straightforward. All references cited in the text must be listed alphabetically by author in a reference list at the end of the article. Since this list must enable the reader to locate the works cited, the reference data must be correct and contain all of the details necessary for identification and library research.

Reference materials not readily available to readers (unpublished works, papers presented at meetings, work in progress) should be cited only when they are essential to the article. They must be included in the reference list. As much information as possible should be noted, following the APA style, including: author, title, date, address from which material may be obtained, and whatever information is necessary to explain the source (for example, "Paper presented at the...").

Submission of Manuscripts

Articles should be submitted in Microsoft Word or WordPerfect format via e-mail to jpcase@amherst.edu or on a CD mailed to Joe Paul Case, Director of Financial Aid, P.O. Box 5000, B-5 Converse Hall, Amherst, MA 01002-5000. Indicate in the cover e-mail or on the CD which format was used. If you wish to submit your article in a different format, please contact Linda Conard at NASFAA, (202) 785-6958.

Manuscripts should be in upper and lower case. All copy, including indented material and references, should be double-spaced and generally no longer than 15 pages (including tables, figures, and references). Each page after the first page should be numbered. The title of the article should appear at the top of the first page of text.

Since the Editorial Board has a blind review policy, the author's name should not appear on any page of the text. A cover sheet should include the title of the manuscript, author's name, institutional affiliation, mailing address, phone number, e-mail address, and the date the manuscript is submitted. Authors are also asked to include on the cover page a two- to three-sentence anecdotal description of the manuscript.

Acceptance Policy

Manuscripts will be acknowledged and then referred to members of the Editorial Board for review. When the Editorial Board completes its review, authors will be notified that their respective manuscripts have been accepted as submitted, accepted pending revisions, or rejected. The Editor retains the option to obtain final author approval for manuscripts that have been significantly altered in the editorial process.

Articles will be reviewed for substance and presentation. Please refer to “Writing and Organizing Manuscripts” above. The Editorial Board will consider the relevance of the article to current needs in the field, the significance of the idea or usefulness of the information, appropriate nature of any research method and/or logic of presentation, as well as clarity, syntax, and style, although these are the responsibilities of the author.

It is the general policy of the Editorial Board to accept articles not previously published elsewhere or not currently under consideration for publication elsewhere. Authors submitting a manuscript do so with the understanding that, if it is accepted for publication, copyright of the article will be assigned exclusively to the *Journal of Student Financial Aid*. The Board will not refuse any reasonable request by the author for permission to reproduce any part of it. The author alone is responsible for quotations from copyrighted materials.

NASFAA Sponsored Research Grant Program

The National Association of Student Financial Aid Administrators (NASFAA) sponsors a semi-annual research grant that provides funds to faculty members, graduate students, financial aid administrators, and scholars at non-profit organizations for research projects on state and federal student financial aid policy, administration, and related topics.

Sponsored Research Grants are intended to help recipients cover the direct costs of undertaking research projects, including temporary assistance, printing, postage, mainframe computer time, and preparation of papers and reports. Graduate students may use the funds to complete dissertations, theses, or other research projects. NASFAA receives a generous contribution from the Lumina Foundation for Education in Indianapolis, IN, to fund the Sponsored Research Grant Program.

Financial aid administrators, researchers, and others are invited to submit proposals. While applicants may submit proposals at any time, proposal reviews occur in the spring and fall of each year. The deadline for submitting proposals is September 15 for fall awards and March 15 for spring awards.

For further information, contact Linda Conard, NASFAA Director for Communications, at 1101 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036, or by phone at (202) 785-6958. You may also send an e-mail to ConardL@nasfaa.org for more details. NASFAA members can download the entire application, including the application deadlines, from the NASFAA Web site at www.nasfaa.org/journal.asp.