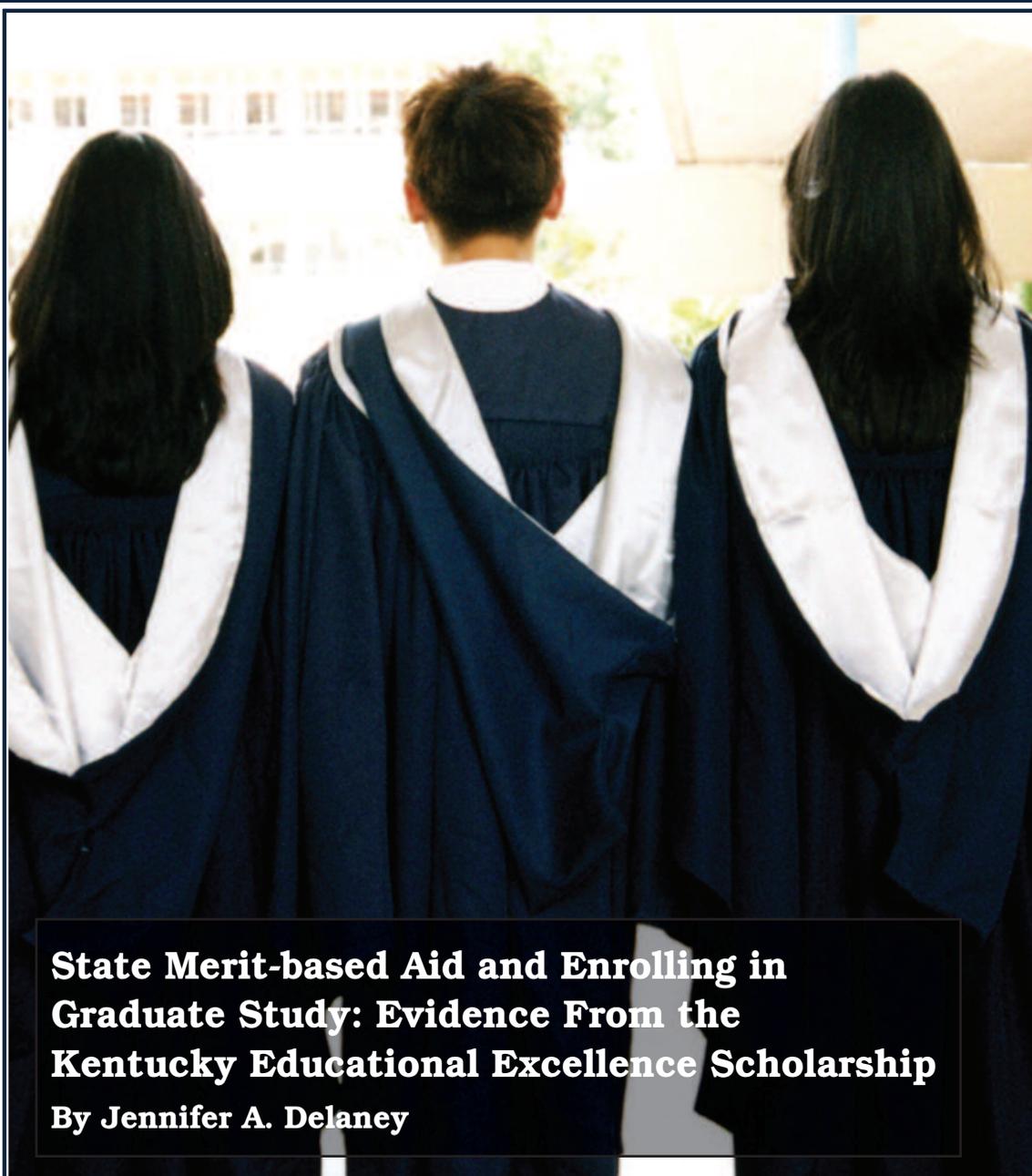


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State Merit-based Aid and Enrolling in Graduate Study: Evidence From the Kentucky Educational Excellence Scholarship

By Jennifer A. Delaney



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Editor's Column: Helping Students Succeed

Aid administrators are accustomed to deferred gratification. The reward for an aid administrator is when a student finishes her course of study, achieves his educational objective, or receives the degree. While certainly much more needs to be done in student access to postsecondary education, there's even more effort required after students are enrolled to help them persist in their studies and ultimately succeed.

Aid administrators can influence retention by promoting helpful attitudes, pressing for flexible policies, being alert to individual needs, and advocating for student services. Here are some questions to consider that can make the difference between retention and attrition.

Student budgets

- Are student expense budgets tailored to students' actual billed expenses? For example, if the institution has a variety of room and board options, is the individual's actual expense included in the budget? Are fees for laboratory, art or photography courses included in the budget?
- How realistic are allowances for out-of-pocket expenses? Does the institution periodically survey actual student expenses?
- Is the aid office sensitive to individual needs that may have implications for expense budgets? Is student health insurance included in the expense budget? Is there a way to help students cover unexpected medical and dental expenses that may not be covered by insurance? Are there resources, such as emergency loan funds, that can address emergency expenses, especially for students from a low-income background?

Need analysis

- Is the aid program attuned to considering families' special circumstances? Is information sought to document unusual family situations? Professional judgment, on a case by case basis, allows the aid administrator to go beyond the cut-and-dried result of the basic need analysis formulas.
- If the institution expects a standard amount to be saved from summer earnings, are the expectations reasonable? What provisions are there for making up a shortfall in savings? Is there consideration of the circumstances that contributed to the shortfall? For example, has the student

helped support the family, not been able to find employment, or been engaged in community service or a low-paying internship?

Awarding

- Packaging policies necessarily are developed in relation to available aid resources. However, if aid is insufficient for all students' needs, how is available aid distributed? Does the distribution try to accommodate the very neediest students? A full aid package may well determine whether a low-income student can persist in enrollment.
- What is the level of borrowing expected of students? What does this total for the entire degree or certificate program? What is the loan repayment burden in relation to prospective income? Although loan entrance counseling is required, is there further counseling provided in the course of study?
- How much employment is regularly packaged for students? What time commitment does the work typically entail? How reasonable is it in relation to the student's academic schedule or in relation to a student's family obligations or to work outside of the institution? Is there assistance in placing students in Work-Study positions?
- Are advances on student account credit balances available in a timely manner? Are refunds, especially for book money, made available at the beginning of the term and in a form that is readily usable by the student (e.g., debit cards instead of paper checks)?

Other student services

- *Personal counseling.* The stresses of being a student may compound other stresses in a student's life. Are counseling services available within the institution? Is the staff receptive to referrals from the aid office? Does the student health plan cover referrals to off-campus mental health professionals?
- *Academic support.* Students may encounter particular academic challenges that require remedial work or special help. Is there coordination of support services? Is tutoring accessible to those who need it? Is other help available, for example, in writing and computational skills?
- *Career services.* Is there outreach to students to make them aware of career services? Is help available in sharpening a student's focus on employment following the degree or certificate program? Are internship or cooperative education opportunities open to students? Can students find help in polishing resumes and rehearsing interview skills? Is there a way for the neediest students to buy clothes suitable for an interview or to afford other expenses for going on an interview?

- *Students with families.* Does the institution have housing for students with families? If not, is there help in finding housing? Are there on-campus child care facilities? Are resources available to help a student who faces child care or child support costs?
- *Financial literacy.* Has the institution developed and implemented a program for financial literacy? Topics of particular relevance to students include budgeting, both while a student and after completion of studies; credit, including credit cards, interest rates, and credit scores; and debt capacity and managing repayment.

Being an advocate for students probably is not in the aid administrator's job description. Nevertheless, a positive approach to developing policies and procedures, husbanding aid resources, and cultivating connections with other student service offices can have salutary results in helping students succeed.

In this Issue

We are pleased to present three articles to readers of the *Journal*:

- **Jennifer A. Delaney** examines the nexus of state merit-based aid and students' continuing on to graduate study in "State Merit-based Aid and Enrolling in Graduate Study: Evidence from the Kentucky Educational Excellence Scholarship."
- **Patricia Boyer** and **Bonita Butner** report findings that support advocacy for lessening loan burden, especially of minority students, in "Advancing or Hindering the Next Generation?: A Look at Financial Aid for Minority Graduate Students."
- **Michael Harris** and **Bradley Barnes** explore an issue of interest to admission officers and enrollment managers as well as aid administrators in "Branding Access through the Carolina Covenant: Fostering Institutional Image and Brand."

A personal word

With this issue I end my tenure of four years as executive editor of the *Journal* and fifteen intermittent years as a member of its editorial board. It has been a pleasure to serve NASFAA and the profession in these roles. I would be remiss if I did not thank our managing editors, Linda Conard and Gigi Jones, for their efforts in shepherding each issue to publication; my fellow members of the editorial board for their untiring work in reviewing and evaluating manuscripts and providing counsel; and my three predecessors as editor, especially the indefatigable Joe Russo, for setting the standard. I am grateful to Jacob Gross, who now assumes the

editorship. The *Journal* will be in good hands with Jake's educational and research background, perceptive reading of manuscripts, and keen editorial sense.

Joe Paul Case
Editor

State Merit-based Aid and Enrolling in Graduate Study: Evidence From the Kentucky Educational Excellence Scholarship

By Jennifer A. Delaney

Jennifer A. Delaney is assistant professor of education policy, organization, & leadership at the University of Illinois at Urbana-Champaign.

This study considers the effect of a state merit-based aid program for undergraduate students on subsequent enrollment in graduate school. It uses student unit record data to analyze the impact of the Kentucky Educational Excellence Scholarship (KEES). Price theory is used as a framework for understanding the incentives provided by KEES. Using a logistic regression approach, this study shows an approximately forty percent increase in the probability that students would attend graduate school if their KEES award amount increased from zero to the maximum award amount. This finding has important implications for policymakers in Kentucky and other states.

State merit-based aid programs are large-scale student financial aid programs awarded on the basis of merit, sponsored and administered by state governments. Most state merit-based aid programs are new, as eight states have begun programs since 1999. Although there are some disagreements in the literature about which states' programs count as being broad-based, approximately 16 states have large scale merit-based aid programs (Heller, 2001; Educational Commission of the States, 2005; Doyle, 2006). States spent \$1.7 billion on undergraduate non-need-based aid in 2004-05, which represented 27 percent of the total undergraduate student aid expenditures by the states (NASSGAP, 2006).

Merit-based aid programs represent an important shift in state student aid funding practices. Between 1994-95 and 2004-05 merit-based aid awards grew by 347.9 percent in the states, whereas need-based grant aid awards grew by only 98.5 percent (NASSGAP, 2006). Traditionally, state investment in student financial aid has been exclusively through need-based aid programs. Awarding student financial aid on the basis of merit, instead of need, represents a break from this tradition and could have important consequences. Given the perceived political popularity of merit-based aid programs, it is likely that they will be a part of state higher education funding for some time. Understanding both the intended and the unintended consequences of these programs is important as states consider future student financial aid and the returns from investing in merit-based aid programs.

Merit-based aid programs are unique in that receipt and continuation of the award is contingent on academic achievement. Traditional studies of student financial aid focus on the financial implications of these programs.

Because of the unique requirements of merit-based aid, this study instead questions the *academic* consequences of merit-based aid. Understanding the effect of merit-based aid programs on significant academic outcomes at the postsecondary level is important as states consider future student financial aid and the returns from investing in merit-based aid programs. This study explores the impact of merit-based aid on one important postsecondary academic outcome: enrollment in a graduate program.

Review of the Literature

There are a variety of findings in the higher education finance literature that price, derived solely from tuition or in combination with student financial aid, matters for students' college decisions (Jackson & Weathersby, 1975; Leslie & Brinkman, 1987; Heller, 1997; McPherson & Schapiro, 1999; Dynarski 2003; Kane, 2003). Merit-based aid changes the price of a college education as do other forms of student financial aid, and it is expected that it too will lead to changes in student demand.

Much of the debate in the academic literature surrounding merit-based aid programs has focused on the trade-off between need-based aid and merit-based aid (Dynarski, 2003; Education Commission of the States, 2005; Heller, 2000, 2001; Heller & Rasmussen, 2001; St. John & Chung, 2002). This study does not address this trade-off. Instead, it considers only merit-based aid with the understanding that, like other types of financial aid, merit-based aid is a tool that can be used by the state to achieve particular goals.

In addition, because merit-based aid is awarded on the basis of academic achievement, it is expected that this form of financial aid will have an effect on postsecondary academic outcomes. Previous literature has shown that merit-based aid programs have a particular impact on the academic performance of students.

Considering high school performance, Henry and Rubenstein (2000) found that the number of students who qualify for the Georgia HOPE scholarship by achieving a 3.0 average in high school has steadily increased since the introduction of the merit-based aid program. Testing the relationship between high school grades and SAT scores, they showed that high school achievement remained steady or increased over this period, indicating real improvement in high school performance (not grade inflation). In sum, Henry and Rubenstein (2000) found that HOPE scholarships increased the quality of K-12 education.

For entering students at the University of Georgia, Cornwell, Lee and Mustard (2005) found that HOPE scholarships increased freshman Graduate Point Averages (GPAs) by 0.13 points. Likewise, Dynarski (2003) found an increase in the proportion of freshman with grades below a B dropped from 40 to 27 percent following the introduction of the HOPE program.

Binder, Ganderton and Hutchens (2000) found that, during college, grade point averages (GPAs) rose after the introduction of the New Mexico Success merit-based aid program. At the University of Georgia,

Cornwell et al. (2003) found a 22 percent increase in students taking summer course, which indicates that students are changing their academic behavior, such as spreading their coursework over more calendar time, to maintain their GPA's and their HOPE scholarships.

Considering college persistence and completion, Binder et al. (2000) found that retention of college students fell in New Mexico after the introduction of the state's merit-based aid program. However, Henry, Rubenstein, and Bugler's (2004) analysis shows that the HOPE scholarship had a positive effect on four-year graduation rates and on college GPAs.

The Kentucky Educational Excellence Scholarship

In order to study the impact of merit-based aid on enrollment in a graduate program, this study analyzes the Kentucky Educational Excellence Scholarship (KEES). KEES was created in 1998 by an act of the General Assembly of Kentucky. The first awards were granted in 1999. Kentucky is an ideal location for this study because the state maintains extensive data on college students, which allows for detailed empirical analyses that are not possible in other states.

KEES also has a number of innovative policy features that make it unique for study. Students do not apply for KEES. Each year of high school, students' GPAs are automatically reported to the state. The Kentucky Higher Education Assistance Authority (KHEAA) then sends letters to eligible students informing them of the amount of the award they are eligible for if they attend a college in-state. Once a student enrolls in college, students automatically receive the scholarship with no paperwork submitted. With these policy innovations, Kentucky ensures that the scholarships are awarded to all eligible students and that concerns about barriers created by applications, which are common in other merit-based aid states, do not exist with KEES. In addition, these innovations serve to mitigate sample selection bias that is a common concern when examining the effect of academic scholarships on financial aid programs.

In order to receive the KEES base award, students must achieve at least a 2.5 cumulative G.P.A. at the end of at least one academic year of high school. The award amounts for KEES are graduated based on the G.P.A. of the student – the higher the G.P.A., the higher the award amount. Students who earn a G.P.A. equal to or greater than a 4.0 receive the maximum award of \$500. This process is cumulative, since the award for each year of high school is added to the previous year's awards. The student receives the total amount of KEES that they have earned over the course of high school for each year of college.

Students can also receive bonus KEES awards based on their scores on college admission exams. In order to qualify for a bonus award, a student must first have received a base award. Students who earn a score of 15 or higher on the ACT or a 710 on the Scholastic Aptitude Test (SAT) qualify for a bonus award. Bonus awards are also graduated: the higher the ACT score, the higher the amount. The ACT bonus award is received for each year of postsecondary study. Award amounts are based on the highest ACT score achieved by the student before high school graduation. Table 1

shows the annual amount of KEES money that a student will earn for a given GPA and the amount of “bonus” KEES money that a student will earn for a given ACT score.

Following is an example of how KEES works in high school. If a student has a 3.00 grade average at the end of her freshman year of high school, then she would earn \$250 for each year she is enrolled in college. If

Table 1: KEES Base and Bonus Awards Based on High School GPA per Year and ACT Scores, 2005.

GPA	KEES Base Award Amount	ACT Score	KEES Bonus Award Amount
2.50	\$125	15	\$36
2.60	150	16	71
2.70	175	17	107
2.75	187	18	143
2.80	200	19	179
2.90	225	20	214
3.00	250	21	250
3.10	275	22	286
3.20	300	23	321
3.25	312	24	357
3.30	325	25	393
3.40	350	26	428
3.50	375	27	464
3.60	400	28+	500
3.70	425		
3.75	437		
3.80	450		
3.90	475		
4.00	500		

Sources: KHEAA website – KEES base awards. Available at: <http://www.kheaa.com/KEESfaqs.html#how%20much%20for%20GPA> website viewed on 1-19-05).

KHEAA website – KEES ACT bonus awards. Available at: <http://www.kheaa.com/KEESfaqs.html#how%20much%20for%20GPA> (website viewed 1-19-05).

in her sophomore year, she receives a 2.75 grade average, she would receive an additional \$187 dollars for each year of college, for a total award of \$437. The student would receive a letter from KHEAA that she has \$437 in her KEES “bank account.” If at the end of her junior year, she earns a 3.1 grade average, an additional \$275 would be added to her KEES scholarship, which would now pay \$712 per year of college. If at the end of her senior year, she earns a 3.2 grade average she will earn an additional \$300 in her KEES scholarship, for a total payout of \$1,012 per year of college. If the student also took the ACT during their senior year and scored a 21, then an additional \$250 would be added to her scholarship. In total this student would receive \$1,262 per year while she is enrolled in postsecondary education.

Jeff Green Scholars, named after the late state senator and General Assembly member, are students who earn a 4.0 GPA for each of their four years in high school and score a 28 or higher on the ACT. Jeff Green Scholars earn the maximum amount possible for the KEES scholarship, \$2,500 per year for college for a total of \$10,000 over four years.

Students must maintain a minimum GPA while enrolled in postsecondary education in order to continue to receive KEES. In their freshman year, students must earn a cumulative college GPA of 2.5 in order to receive KEES during their sophomore year. For each of the following years, students must earn a cumulative GPA of 3.0 in order to receive the maximum KEES in the subsequent academic year. If a student earns a cumulative GPA less than 3.0, but greater than 2.5, then the student will earn 50 percent of his or her KEES award in the subsequent academic year. If a student earns less than a 2.5 GPA, then he or she will lose the KEES award for the next academic year. However, students who have lost KEES eligibility may regain the award by earning a 2.5 GPA (or higher) in a subsequent year. KEES can only be used for eight academic terms of undergraduate study over the course of five years. Part-time students receive a percentage of their KEES award based on number of hours enrolled. KEES can be used to cover any educational expenses – tuition, fees, books, supplies, room, board, etc.

The Impact of KEES on Graduate Study

Data for this study come from two sources: the Kentucky Higher Education Assistance Authority (KHEAA), which administers the KEES program and the Kentucky Council on Postsecondary Education (CPE), which provides data on academic outcomes. The dataset ranges from 1990 to 2005 and contains observations at the semester level. The data are uniquely identified at the individual student level and include all high school and college students in public or private institutions in the state of Kentucky. This study is the first study to use these particular data for academic research.

This paper addresses the following research question: *What is the effect of KEES on students continuing immediately on to graduate study in Kentucky?* Price theory was used as a conceptual framework. Because KEES reduces the price of undergraduate education, students should be more likely to attend graduate school. KEES does not provide any funds for graduate school.

However, compared to students who did not receive KEES as undergraduates, those who did receive it should have more financial resources available to use toward graduate school expenses. In addition, KEES is awarded to high-achieving students, those most likely to attend graduate school in any case. The effect is not causal, but because KEES recipients are higher-achieving than their peers who did not receive the award, they should be more likely to attend graduate school.

There are some limitations with this analysis. Since the data include only students in Kentucky, individuals who may have attended graduate school out of state are not included in the analysis. Also, because the years in the dataset are limited, only students who attended graduate school soon after completing their undergraduate programs could be considered. Finally, not all cohorts of students could receive the full KEES award since KEES was not fully implemented until the fourth year of the program.

In the program's first year, high school seniors were only eligible to receive KEES awards based on their last year of high school. Students, who were high school juniors when KEES was introduced, were only able to use their last two years of high school to qualify for KEES awards. The same pattern holds for other cohorts of students. Table 2 shows the KEES awards received by each cohort available in the data.

Assuming that it takes students four years to receive an undergraduate degree, the data make it possible to observe the 1999-2000 and 2000-2001 cohorts in graduate school. Neither of these initial cohorts received the full amount of the KEES award, so it is expected that any observed effect will be less powerful than with subsequent cohorts. For the 1999-2000

Table 2: Maximum Number of Years of KEES Awards Received by High School Cohort

Year	Number of Years KEES Can be Awarded
1999-2000	1 year of KEES award
2000-2001	2 years of KEES award
2001-2002	3 years of KEES award
2002-2003	4 years of KEES award
2003-2004	4 years of KEES award
2004-2005	4 years of KEES award

cohort, the dataset includes observations for students who attended graduate school within two years of receiving their undergraduate degree; for the 2000-2001 cohort, the data includes observations for those who went on to graduate school immediately after they received their undergraduate degree.

Table 3 presents available data on the number of graduate students¹ versus non-graduate students. This analysis uses a cross-sectional dataset that has only one entry per student and was created by collapsing the panel dataset compiled from KHEAA and CPE data. The frequency counts and all of the data presented in this section come from the cross-sectional dataset.

In considering the effect that KEES has on enrollment in graduate school, differences between graduate students who did and did not receive a KEES award were examined. There are two possible reasons for students not to receive a KEES award: first, students who attended high school after KEES was introduced and did not receive the award because they did not qualify; and, second, students who were in high school before KEES was introduced. In this cross-sectional dataset, it is impossible to differentiate between these two groups of students.² Table 4 presents frequency counts for graduate versus non-graduate students who received a total KEES award of an amount greater than zero.

Next t-tests were used to look for differences in the mean number of graduate students who did and did not receive KEES awards. Table 5 presents the results of the Welch corrected t-test. Among students who received KEES awards, 2.10 percent enrolled in graduate study; among those who did not receive a KEES award, 0.91 percent did so. The 0.0119 difference in mean number of students enrolled in graduate study is significant ($t = -20.1215$). This finding indicates that there is a significant difference in graduate enrollment between students who did and did not receive KEES. Although this result is diagnostic of a difference in graduate school enrollment, it is far from conclusive, especially because the group of students who did not receive KEES includes both those who did not qualify for the award and those who enrolled before the program was introduced.

¹ Graduate students are defined by either being enrolled at a graduate degree level or by declaring a major in a graduate field. Students listed in any of the following degree levels are included: master's degree, master's degree – college education, doctoral degree, first-professional degree, post-baccalaureate certificate, or post-master's certificate. In addition, students who have declared either a first or second major in one of the following fields are considered graduate students: doctoral degree, house staff, master's degree, or first professional degree. Students with a first or second major in the following fields are not included: non-degree, specialist's degree, not designated, undecided, undeclared.

² Both groups of students have intentionally been kept both in this dataset. Including students from the pre-KEES years allows a better comparison of students of like academic ability with one group receiving KEES and the other group not. By including students from the post-KEES years, comparisons may be made between groups of students when the program actually existed, which is important for the study of the program. However, since KEES is awarded on the basis of academic achievement, the comparison between students who did and did not receive KEES in the post-KEES years is complicated as it is difficult to hold academic ability constant. Because it is difficult to tell which control group is better, both types of non-recipients are included in the dataset.

Table 3: Frequency Counts Indicating If a Student Was Ever a Graduate Level Student

	Frequency
Non-Graduate	164,589
Graduate Student	2,900

Table 4: Students Who Received a Total KEES Award Amount Greater than Zero and Their Graduate Student Status

	Frequency
Non-Graduate	112,727
Graduate Student	2,423

Table 5: Differences in the Number of Graduate Students Pre- vs. Post-KEES

Group	Observations	Mean	Standard Error	Standard Deviation
Pre-KEES	52,339	0.0091	0.0004	0.0950
Post-KEES	115,150	0.0210	0.0004	0.1435
combined	167,489	0.0173	0.0003	0.1304
diff		0.0119	0.0006	
t =	-20.1215			
Welch's df =	145,863			
Pr(T > t) =	0			

Given the significant finding from the t-test, a cross-sectional logistic regression model was used that allowed controls to be added to better model the effect of KEES on graduate enrollment. Demographic controls included: age as measured by date of birth, gender, race (with white, non-Hispanic as the excluded category), and family income by using a mean of net family income during the period that the student was included in the

dataset.³ Other controls were added for academic ability by using ACT score, SAT score, and mean high school GPA. Because major field could influence a student's decision to attend graduate school, a control that indicates whether a student was a Science Technology Engineering or Mathematics (STEM) major was also included.⁴

In this analysis, KEES award amounts are considered to form a continuous function, ranging between \$125 and \$2500 for each year of college. Students qualify based on their high school GPA for each year of high school. Because there are four years in high school and students can earn different GPAs for each year, many combinations of GPA amounts are possible. KEES awards are granted in increments of 0.10 GPA points. In addition there are separate award amounts for GPAs of 2.75, 3.25, and 3.75 respectively. There are 19 possible award amounts based on GPA, and 20 possibilities if \$0 is considered to be an award amount. Given that any of these award amounts is possible for every year of high school, there are 160,000 amounts possible for the base award ($20 \times 20 \times 20 \times 20 = 160,000$). Furthermore, 15 different amounts of supplemental awards may also be added to base award amounts to determine total KEES award. Students can earn any of these award amounts independent of their base awards. Combining the base award with the supplemental award yields 2,400,000 possible values for KEES awards ($160,000 \times 15 = 2,400,000$). Since award amounts vary between \$125 and \$10,000, it is reasonable to argue that the 2,400,000 possible combinations lead to a function that is essentially continuous.

Equation 1 is the general estimating equation used to test the effect of KEES award amount on graduate study.

$$\begin{aligned}
 \text{GradStudent}_u &= \alpha + \beta_1 \text{TotalKEES}_u + \beta_2 \text{Birth}_u \\
 &+ \beta_3 \text{Female}_u + \beta_4 \text{Black}_u + \beta_5 \text{Hispanic}_u + \beta_6 \text{Asian}_u \\
 (1) \quad &+ \beta_7 \text{AmericanIndian}_u + \beta_8 \text{OtherRace}_u \\
 &+ \beta_9 \text{MeanNetIncome}_u + \beta_{10} \text{ACTscore}_u + \beta_{11} \text{SATscore}_u \\
 &+ \beta_{12} \text{MeanHSGPA}_u + \beta_{13} \text{STEM}_u + \varepsilon_u
 \end{aligned}$$

where,

GradStudent_u is a dichotomous variable that indicates if a student, u , was ever enrolled in a graduate level program;

³ This model was run using standardized forms of mean net family income. Standardizing is a common practice that eliminates negative values for family income. This variable was standardized by using two different methods: first, by taking the log of net family income and, second, by squaring net family income. However, the fundamental results did not change when either of the standardized forms of net family income was used. Because there is no difference in results and raw mean net family income is easiest to interpret for nonnegative values, results are presented using the raw form of mean net family income.

⁴ It would have useful to have included additional controls such as student loan burden; however, data on student loans were not available at the time the dataset request was prepared.

$TotalKEES_u$ is a continuous variable that is equal to the total amount of KEES award received by student, u ;

$Birth_u$ is a continuous variable that reports the date of birth (measured by day) for student, u .

$Female_u$ is a categorical variable that is equal to 1 if student, u , is female and 0 if the student is male.

$Black_u$ is a categorical variable that is equal to 1 if student, u , is Black, Non-Hispanic and 0 otherwise.

$Hispanic_u$ is a categorical variable that is equal to 1 if student, u , is Hispanic and 0 otherwise.

$Asian_u$ is a categorical variable that is equal to 1 if student, u , is Asian or Pacific Islander, and 0 otherwise.

$AmericanIndian_u$ is a categorical variable that is equal to 1 if student, u , is American Indian or Alaskan Native, and 0 otherwise.

$OtherRace_u$ is a categorical variable that is equal to 1 if student, u , is of Other Race or Alien, and 0 otherwise.

$MeanNetIncome_u$ is a continuous variable that is equal to the mean of the net family income for student, u ;

$ACTscore_u$ is a continuous variable that reports the ACT score students, u ;

$SATscore_u$ is a continuous variable that reports the SAT score for student, u ;

$MeanHSGPA_u$ is a continuous variable that records the mean high school GPA for student, u ;

$STEM_u$ is a categorical variable that indicates if student, u , has ever been a Kentucky identified STEM major as either a first or second major;

ϵ_u is a random error term.

Table 6 presents descriptive statistics for the estimating sample used. Several points in Table 6 are worth noting. Of the students in the dataset, 3 percent had enrolled as a graduate level student at one time. The mean KEES award amount received during the years of the dataset is \$2,391. Of those in the dataset, 62 percent are women, African Americans comprise 4 percent, and Asians are approximately 1 percent. The mean net family income for these students is \$53,840. Mean ACT score is approximately 20 and includes scores for the full range of the test (from zero to 36). Mean high school GPA is approximately 3.5. Approximately 35 percent of the students in the dataset had at one time declared a major in a STEM field.

Table 6: Descriptive Statistics for Pooled Dataset Testing KEES and Graduate Study

Variable	Mean	Std. Dev.	Min	Max
If ever Graduate- Level Student	0.03	0.16	0	1
Total KEES award amount	2,391.13	2,037.61	0.00	8,000
Date of Birth	8,914.15	598.67	6,851	11,226
Female	0.62	0.49	0	1
Black	0.04	0.20	0	1
Asian	0.01	0.08	0	1
Mean net family income (in 1000s)	53.84	43.92	-236.80	847.32
ACT Score	19.63	7.96	0	36
SAT Score	124.21	360.00	0	1600
Mean High School GPA	3.49	0.72	0	6
If ever a KY- identified STEM Major	0.35	0.48	0	1

Note: The racial categories of Hispanic, American Indian, and Other Race were dropped due to lack of variation in the data.

Using the dataset described above, a cross-sectional logistic regression model was run. The results are presented in Table 7, including log odds ratios and standard errors.

Given that the model is a cross-sectional logistic regression, the marginal effect of the coefficients was calculated to interpret the log-odds ratios (Wooldridge, 2002). Table 8 presents the marginal effects (dy/dx) of the log-odds ratios.

When controls were included, the same positive significant result ($z = 4.09$) was found as had been obtained with the t-tests. The marginal effect (dy/dx) of total KEES is 0.000000490 with a standard error of 0.00000 (z = 4.10). If a student went from having zero dollars in KEES to having the maximum amount of KEES award (\$8,000) in the sample, the probability of his or her attending graduate school would increase by 0.39 percentage points. As shown in the t-tests, of students who did not receive KEES, 0.91 percent went on to graduate school. If a hypothetical student had instead received \$8,000 in KEES, the probability of attending graduate school would increase to 1.3 percent. This is approximately a 40 percent increase in the probability that the students who previously did not receive KEES would attend graduate school if they received the maximum amount in the sample.

Table 7: Effect of Total KEES on Ever Enrolling in Graduate Study

	If ever a Graduate – Level Student	Robust Standard Errors
Total Cumulative KEES Award Amount Received	.000161	(.000393)**
Student Birth Date	-.0032	(.00019)**
Female	.194	(.125)
Black	.07	(.333)
Asian	-.99	(1.15)
Mean Net Family Income (in 1000s)	-.013	(.00206)**
ACT Score Value	.0593	(.0156)**
SAT Score Value	.000454	(.000132)**
Mean HS GPA	.223	(.183)
If First or Second Major Was Ever Kentucky-Identified STEM	.918	(.12)**
Constant	20.6	(1.6)**
Observations	13,997	

Notes:

* = significant at 5%; ** = significant at 1%

White is the excluded race category. Hispanic, American Indian, and Other Race were also dropped due to lack of observations.

In addition to the positive significant result on the total KEES variable, there was also a positive significant result for the Kentucky-identified STEM major variable ($z = 7.62$). In other words, students who major in STEM fields are more likely to attend graduate school than those who major in other subjects. The marginal effect (dy/dx) of the Kentucky-identified STEM major is 0.003332 with a standard error of 0.00086 ($z = 3.88$). This indicates that if a student changes into a STEM field, the probability of his or her attending graduate school increases by 0.3 percentage points.

Other variables also show significant results, although the marginal effects are very small. Student age has a negative relationship with enrolling in graduate school: younger students are more likely to enroll than their older peers. Interestingly, in the dataset, mean net family income also has a negative relationship: wealthier students are less likely to enroll in graduate school. As would be expected, both ACT and SAT scores have a positive relationship with enrolling in graduate school. The higher students' scores on a college entrance exam, the more likely they are to enroll in a graduate-level program.

Table 8: Marginal Effects of Total KEES on Ever Enrolling in Graduate Study, Controlling for Kentucky STEM Majors

Variable	dy/dx	Std. Err.	z
Total KEES award amount	4.90E-07	0.00000	4.10
Date of Birth	-9.74E-06	0.00000	-6.52
Female*	0.00058	0.00036	1.60
Black*	0.00022	0.00108	0.20
Asian*	-0.00193	0.00138	-1.40
Mean Net Family Income (in 1000s)	-4E-05	0.00001	-4.20
ACT Score	0.000181	0.00005	3.79
SAT Score	1.38E-06	0.00000	2.69
Mean High School GPA	0.000678	0.00056	1.21
If ever a KY-identified STEM Major*	0.003332	0.00086	3.88

Note: (*) dy/dx is for discrete change of dummy variable from 0 to 1

Conclusion Both the t-tests and the cross-sectional logistic regression results indicate that there is a positive effect of receiving KEES on attending graduate school. In other words, receiving an additional dollar of KEES has a positive significant effect on a student’s prospect of enrolling in graduate-level study. Also, students who had a first or second major in a STEM field were more likely to attend graduate school than their peers.

The cross-sectional dataset did not distinguish between those students who received KEES because the program did not exist and those who did not qualify. Given this limitation, these results should not be interpreted as being causal, but rather indicative of a trend. Perhaps in subsequent years when more cohorts of students under the KEES program have passed through their undergraduate careers, researchers can conduct a more nuanced study using panel data and look at issues such as length of graduate study and years between finishing a baccalaureate degree and enrolling in a graduate-level program. In addition, it is likely that the limitations of available data – having only two cohorts who could have gone to graduate school, not having a cohort that received the full benefit of KEES, and only being able to look at entry into graduate school within one to two years after graduation in Kentucky – result in an underestimate the effect of KEES on graduate study.

The analysis shows that merit-based aid has a positive effect on the academic choices and outcomes of college students. No longer is student financial aid limited only to the financial sphere of higher education. With the introduction of merit-based aid, financial aid appears to have an impact on the academic decisions of college students, as well. KEES seems to change the academic behavior of college students in Kentucky, particularly with regard to their enrollment in graduate study.

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Advancing or Hindering the Next Generation? A Look at Financial Aid for Minority Graduate Students

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African American and Hispanic participation in graduate and professional programs has increased over the last decade, but the literature on how these students financially support their education is limited. The purpose of this study is to examine the differences in financial aid awards and awarding patterns among African American, Hispanic and white graduate students. The 2004 National Postsecondary Student Aid Study database was utilized to study the financial support and borrowing habits of full-time graduate students. Through the theoretical lens of “disparate impact”, findings revealed that African American students received less institutional dollars and borrowed more money at both graduate and undergraduate levels. Also, the financial support Hispanic students received and amount of money borrowed were parallel to White students. The study concludes with some specific recommendations for institutions.

African American and Hispanic participation in graduate and professional programs has increased over the last decade. A recent report from the Council of Graduate Schools (CGS) stated that racial and ethnic minority students comprised 28 percent of first-time enrolled graduate students (Bell, 2009). While this percentage is encouraging, African Americans and Hispanics continue to lag behind their white counterparts in enrollment and degree attainment. In fact, CGS indicates that African American and Latino bachelor degree recipients are less likely to complete a graduate program (CGS, 2009).

There have been numerous studies of minority participation in graduate education. Most of the studies have examined areas such as socialization (Nettles, 1990), access (Heller, 1999), and time-to-degree (Girves & Wemmerus, 1988). There are also the seminal texts by Bowen and Rudenstine (1992) and Nettles (2006) that take a comprehensive view of the graduate education experience. Most of the studies have mentioned financial aid as a key element in recruitment and persistence in graduate school. Few studies, however, have specifically examined financial aid and the awarding patterns for graduate students. In a 1985 article, Olivas examined financial aid packaging policies and their impact on undergraduate Hispanic enrollment. In his study, he identified four packaging models: (1) Individual Benefit (work-study, unsubsidized loans, personal and family resources); (2) Societal Benefits (subsidized grants and subsidized loans); (3) Individual or Group Characteristic Benefit (subsidized grants, loans and personal resources indexed according to specific characteristics); (4) Mixed Purpose Packages (work-study, loans, grants, award for characteristics, personal and family resources). Olivas found that Hispanics were predominately represented in what he called the “single source” categories of

packaging models “societal benefit” and “individual or group characteristic benefit.” He suggests this may have implications for where undergraduate students enroll (2-year vs. 4-year institutions) and the tenuous position they may find themselves in if federal funding for programs such as Pell grants are reduced.

The literature on financial support for graduate students is limited. Other than the 2009 CGS report, little research has been done on the sources of funding and awarding patterns. CGS found that 73.5 percent and 85.9 percent of all master’s and doctoral students, respectively, received some form of aid. In addition, they found that financial aid for African American and Hispanic students continued to fall short of the aid received by white and Asian American students. This study expands on that work by examining the difference in financial aid awards and awarding patterns among African American, Hispanic and white graduate students.

The 1960s was a decade of change for the United States. The civil rights movement, the women’s movement, and opposition to the Vietnam War created a framework for the transformation of American society. Higher education institutions were affected by these movements and saw changes that included new curricula and a reexamination of policies and procedures. In addition to these changes, institutions also experienced an increase in the number of racial and ethnic minority students. Federal policies such as the Civil Rights Act of 1964 promoted an environment that resulted in greater access for African American students. While the Civil Rights Act of 1964 created opportunities for larger numbers of African American students to gain access to predominately white institutions, the experience for many African American students was not the same as for their white counterparts. Ballard (2004), referring to the education of African Americans in the 1960s, noted:

The University fancied itself free of racism and imbued with the belief that it is the man, not the color, that counts. But self-perception is often fatally in conflict with the perception of others. The white American university, as viewed by blacks, was white and racist.

In particular, campus climates were described as being cold and uninviting for minority students (Fleming, 1984). And even as the number of minority students on our campuses increase, college campuses and students of color continue to struggle with campus climate issues (Locks, Hurtado, Bowman, & Oseguera, 2008; Rankin & Reason, 2003; Solorzaro, Ceja, & Yosso, 2000). Although campus climate is important for the matriculation and persistence of students in graduate programs, the study by CGS found that financial support was the most important factor that contributed to completion.

Background to the Study

One way to understand the awarding of financial aid to graduate students is through the lens of “disparate impact.” Title VII of the Civil Rights Act of 1964 prohibits employers from treating employees differently because of their membership in a specific group. In essence, Title VII speaks to the “disparate treatment” of individuals due to their membership in a specific

group. It was characterized as being “intentional discrimination” against a group or individual. During the 1970s the concept of “disparate impact” was introduced in the legal field. First used by the Supreme Court in the 1971 case of *Griggs v. Duke Power Co.* (401 U.S. 424, 431-2), the ruling suggested there were practices that served as barriers to minority groups. Disparate impact has been defined as the “...facially neutral practice that has an unjustified adverse impact on members of a protected group” (USLegal.com, n.d.). The Court recognized there may be “good intention,” but that certain “mechanism” can be put in place that result in a “disparate impact” on certain individuals or groups. Practices that have been subject to a disparate impact challenge include: (1) written tests, (2) height and weight requirements, and (3) educational requirements.

A recent article in the *Chronicle of Higher Education* (Basken, 2010) suggested that the U.S. Department of Education would take a more aggressive approach to examining civil rights issues on college campuses. Russlynn Ali, Assistant Secretary for Civil Rights, stated the Department of Education would use disparate impact analysis to examine outcome data. Heller and Shapiro (2001) also utilized the disparate impact frame in a study that examined high-stakes testing. In particular, the study examined the legal precedent for the three-step process needed to prove disparate impact. Elizabeth Mooney O’Callaghan (cited in Cook, 2006) also used the concept of disparate impact in a presentation on women and the tenure process. She suggests that the numbers are still dismal for women in academe. More men than women are on the tenure track and that women are a disproportionate number of adjuncts. The tenure system (or mechanism) is set up to be neutral but does, in fact, disadvantage women. While arguments have been advanced in the legal field and in academe that question the legitimacy of using disparate impact (Ricketts, 2010; Braceras, 2002), the concept is salient for an examination of institutional aid policies and how they may impact various student populations.

For the purpose of this paper, the concept of disparate impact is used to examine the awarding of financial aid to graduate students, and whether the awarding patterns for financial aid produce a disparate impact on minority graduate students. Specifically, this research focuses on funding patterns and their impact on various graduate student populations.

This study seeks to answer the following questions:

- 1) What are the sources of institutional support for African American, Hispanic, and white graduate students?
- 2) What are the borrowing levels of African American, Hispanic, and white graduate students?
- 3) Is there a statistically significant difference in the institutional support and borrowing levels of African American, Hispanic, and white graduate students?

Methodology

The 2004 National Postsecondary Student Aid Study (NPSAS:04) database was used to study the financial support and borrowing habits of full-time graduate students working on either a master's or doctoral degree by race/ethnicity. NPSAS:04 is described as:

a comprehensive study of financial aid among postsecondary education students in the United States and Puerto Rico that provides information on trends in financial aid and on the ways in which families pay for postsecondary education...The primary objective of NPSAS:04 is to produce reliable national estimates of characteristics related to financial aid for postsecondary students (National Center for Education Statistics online, n.d.).

NPSAS:04 also served as the base year of data collection for the Beginning Postsecondary Students Longitudinal Study (BPS), which followed a cohort of students from the start of their postsecondary education and collected further data from them in 2006 and 2009. NPSAS:04 utilized a web-based instrument for both self- and telephone-administration. Sufficient comparability in survey design and instrumentation was maintained to ensure that important comparisons with past NPSAS studies could be made. Approximately 109,210 undergraduate, graduate, and first-professional students enrolled in postsecondary education between July 1, 2003, and April 30, 2004, comprised the student sample, with special concern for the accurate sampling of students eligible to participate in the BPS longitudinal studies in the future. Students were selected on a flow basis from the institutions providing lists. Of the 109,210 students sampled, 8,200 were determined to be ineligible for the study, resulting in 101,010 eligible student sample members (Cominole, Siegel, Dudley, Roe, & Gilligan, 2004).

The full-time graduate students in this study were 82 percent white, eight percent African American, and 10 percent Hispanic. Additionally, the majority of the students were female (52%) and are working on a doctorate (62%). An analysis of covariance (ANCOVA) was used to analyze data to determine if there were statistically significant mean differences. The covariate for this study was institutional type.

Thirteen variables (i.e., total institutional aid, amount still owed on all education loans, and cumulative amount borrowed for education) were studied related to institutional financial support and amount of money borrowed using NPSAS:04. See Table 1 for variable names.

Results

ANCOVA was utilized to analyze data to determine whether the means were significantly different by race/ethnicity. The least square means presented by race/ethnicity were used because it adjusted for the covariate, institutional type (see Table 2).

Eight of the 13 variables studied were statistically significant: (1) total institutional aid ($F=3.11$, $p=.04$); (2) total assistantships amount ($F=3.76$, $p=.0234$); (3) amount still owed on all education loans ($F=17.89$, $p=.0001$);

Table 1: Demographics of Full-Time Graduate Student (n=2960)¹

Demographics	Frequency	Percentage
Gender		
Male	1,410	48
Female	1,550	52
Race/Ethnicity		
Black/African American ¹	250	8
Hispanic or Latino ¹	280	10
White ¹	2,430	82
Graduate degree program		
Master's	1,110	38
Doctoral	1,850	62
Major		
Humanities	350	12
Social/Behavioral Sciences	500	17
Life Sciences	320	11
Math/Engineering/Computer Science	310	10
Education	390	13
Business/Management	270	9
Health	380	13
Law	50	2
Others	390	13

Source: U.S. Department of Education, NCES, 2004 National Postsecondary Student Aid Study.

Note: ¹IES/NCES requires restricted data sample size to be rounded to the nearest 10.

(4) amount still owed on all graduate education loans ($F=12.50$, $p=.0001$); (5) amount owed on all undergraduate education loans ($F=12.46$, $p=.0001$); (6) cumulative borrowed for education ($F=13.85$, $p=.0001$); (7) cumulative amount borrowed for graduate education ($F=9.17$, $p=.0001$); and (8) cumulative amount borrowed for undergraduate education ($F=9.11$, $p=.0001$). The Wilks' Lambda value was at 98 percent and Pillai's Trace p -value was significant at .0001.

Table 2: Least Square Means and ANOVA P-Values for Graduate Students Receiving Institutional Support and Borrowing Funds

	African American (N=250) ¹ LS Mean	Hispanic (N=280) ¹ LS Mean	White (N=2430) ¹ LS Mean
Total graduate waivers	\$5,331	\$5,420	\$6,080
Institutional aid total*	8,823	10,056	10,938
Graduate assistantship amount	345	529	488
Research assistantship amount	2,115	2,332	2,820
Teaching assistantship amount*	1,484	2,139	2,113
Total assistantship amount	3,944	5,000	5,421
Total aid amount	17,871	16,539	18,067
Amount still owed (all education)***	37,965	24,354	24,470
Graduate loan amount owed***	27,667	18,016	18,155
Undergraduate loan amount owed***	10,299	6,339	6,315
Cumulative borrowed for education***	37,425	25,304	25,986
Cumulative borrowed for graduate education***	25,872	17,563	18,105
Cumulative borrowed for undergraduate***	11,553	7,741	7,882
Wilks' Lambda value = 0.980			
Pillai's Trace p-value = .0001			

Source: U.S. Department of Education, NCES, 2004 National Postsecondary Student Aid Study.

Note:

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$ for ANCOVAs.

¹IES/NCES requires restricted data sample size to be rounded to the nearest 10.

The findings revealed that African American students received less institutional financial aid and borrowed more money at both graduate and undergraduate levels. The financial support Hispanic students received and amount of money borrowed were parallel to white students for several variables. The statistically significant differences, based on post-hoc examinations, were between African American and white students and/or African American and Hispanic students.

Table 3: Percentage of Graduate Student Financial Aid Support by Race/Ethnicity

	White	African American	Hispanic
Total graduate fellowship, grants, traineeships, waivers			
≤ \$6,000	81.16	9.10	9.74
> \$6,000	83.90	7.06	9.04
Institutional aid total			
≤ \$11,000	80.67	9.56	9.78
> \$11,000	84.16	6.73	9.12
Other graduate assistantship amount			
≤ \$480	82.03	8.48	9.49
> \$480	81.56	8.38	10.06
Research assistantship amount			
≤ \$2,800	81.27	8.99	9.74
> \$2,800	0.00	0.00	0.00
Teaching assistantship amount			
≤ \$2,062	81.26	9.08	9.67
> \$2,062	85.11	5.95	8.93
Total assistantship amount			
≤ \$5,300	80.83	9.54	9.64
> \$5,300	84.57	6.15	9.28
Aid total amount			
≤ \$18,000	81.41	7.95	10.64
> \$18,000	82.66	9.06	8.28
Amount still owed on all education loans			
≤ \$26,000	84.11	5.96	9.93
> \$26,000	78.15	13.07	8.78
Amount still owed on all graduate education loans			
≤ \$19,000	83.73	6.54	9.73
> \$19,000	78.37	12.54	9.09

Table 3: Percentage of Graduate Student Financial Aid Support by Race/Ethnicity (cont.)

	White	African American	Hispanic
Amount still owed on all undergraduate education loans			
≤ \$6,700	83.78	6.59	9.62
> \$6,700	77.80	12.91	9.29
Cumulative borrowed for education			
≤ \$27,000	83.71	6.22	10.08
> \$27,000	79.09	12.33	8.58
Cumulative borrowed for graduate school			
≤ \$19,000	93.31	6.93	9.77
> \$19,000	79.25	11.74	9.01
Cumulative borrowed for undergraduate education			
≤ \$8,200	83.67	6.60	9.72
> \$8,200	78.75	12.12	9.14
Can afford school without working			
No	81.22	8.92	9.87
Yes	86.65	5.85	7.49
Effect of job on graduate school			
Not a student working to meet expenses	81.56	8.60	9.85
Positive effect	80.68	7.39	11.93
Negative effect	82.91	9.83	7.26
No effect	85.63	6.32	8.05

Source: U.S. Department of Education, NCES, 2004 National Postsecondary Student Aid Study.

Table 3 presents information on the percentage of financial aid support by race/ethnicity of the graduate students. The dollar amounts were based on the mean for each variable. If the dollar amount of the variable was at the mean or less than the mean, it is represented by “≤” and is considered a “low” amount. If the dollar amount was greater than the mean, it is represented in the table as “>” and is considered a “high” amount. The results revealed that white students received a higher amount of total graduate fellowships, grants, traineeships and waivers; total institutional aid; teaching assistantship amounts and total assistantship amounts. White and African American students both had a high amount of total aid. Hispanic graduate students received a high amount of other graduate assistantships. On the other hand, African American students had a high amount of loans borrowed and amount of loans still owed. Specifically, they had high amount still owed on all

loans, amount still owed on graduate loans and undergraduate loans, cumulative borrowed for education, and cumulative borrowed for both graduate and undergraduate education. These findings are consistent with data reported in Table 2 of the least squared means and MANOVA.

Additionally, the graduate students were asked if they could afford school without working. The majority of the white students responded “yes,” but the majority of African American and Hispanic students responded “no.” The students were also asked about the effect of employment on grades. The white students responded there is no effect; the African American students responded that there is a negative effect; and the Hispanic students responded there is a positive effect.

Conclusions and Implications

Recent research conducted by CGS found that if institutions are really interested in supporting graduate students of color they should strongly consider two key elements; financial support and collaborative mentoring (Bell, 2009).

Financial support has been defined in this study as the amount of institutional aid provided to students. This study found that African American students received fewer institutionally controlled dollars in support of their education. In particular, African American students received lower amounts of graduate, research and teaching assistantship funds. These figures alone cannot explain why African American students received less financial support than their white and Hispanic counterparts, but they do suggest that there is a disparate impact on African American students in the awarding pattern of these institutional dollars.

Institutions implement policies that guide the recruitment and selection of students for assistantships and the awarding of those assistantships. Even though institutional policies regarding the awarding of assistantships may appear equitable on the surface, the numbers suggest a disparate impact in the awarding pattern on African American students. African American participation as graduate, research or teaching assistants is important in the overall educational process. Various studies have identified assistantships as not only a source of financial support, but also a major conduit for socialization to the profession (Nettles, 1990, 2006). Access to assistantships would also increase access to faculty who could serve as mentors.

As noted previously, CGS found that financial support and mentoring are the key elements that institutions must provide if they want their students of color to succeed. Assistantships have the potential of meeting both of these needs. Without this support, the persistence of students of color, and in particular African American students, in graduate programs may be in jeopardy.

This study also reveals that African American students are borrowing more money to support their study than their white and Hispanic counterparts. African American graduate students borrowed, on average, \$25,872 during the course of their studies while white students borrowed an

average of \$18,105 and Hispanic students, \$17,563. *The Chronicle of Higher Education* reported that the debt load for African American students varies by discipline (April 6, 2007). African American doctoral students in the social sciences incurred the highest level of debt, while students in education funded more of their studies through personal finances. However, as a group, African American graduate students leave school with a greater debt load than any other ethnic group. A heavy debt load has strong implications for African American doctoral students. The impact on their professional life once they leave the university can be overwhelming. Completing a graduate degree is often accompanied by relocation expenses and all of the accoutrements that come with starting a career. African American students who attend full-time must consider this and the time it will take to recoup wages lost while pursuing a graduate degree.

The findings in this study have important implication and raise the question of the disparate impact of current aid award policies on our campuses. Policies and procedures that support the current financial aid awarding process could potentially serve as a barrier to African American graduate students. This study found a statistically significant difference in the funding patterns for African American and majority graduate students. Interestingly, funding patterns for Hispanic students mirrored those of white students. While this sounds counterintuitive, additional study may be required to understand the similarities in the awarding patterns between Hispanic and white graduate students. The good news is that the literature demonstrates a slight closing of the gap in participation rates between minority and majority students. The troubling news is that African American students continue to lag behind in the receipt of institutional dollars to support their graduate study. Consequently, they have to borrow greater amounts to support their graduate work. We suggest that financial aid awarding patterns demonstrate a disparate impact on African American students. Proving disparate impact starts with an examination of the data (e.g., financial aid support). Policies and procedures that support the current awarding process could potentially serve as a barrier to graduate students of color.

Recommendations

The practices at the graduate institutions represented in this study may not have been intentional, yet the evidence reveals a disparity in the amount of aid awarded to African American students. Certain mechanisms may be in place at these institutions that increase the potential for a disparate impact. College administrators must examine their policies and create new tactics to address this disparity. Here are some specific areas to which institutions should pay attention:

1) Institutions should examine their policies surrounding the awarding of graduate assistantships and the distribution of information on assistantships.

Students of color may not have the same access to information as their white counterparts. Being “out of the loop” can perpetuate a pattern of who receives assistantships. Assistantship availability is traditionally posted to institution websites, but just as often, the information may be shared by

word of mouth among faculty and current graduate assistants. If students of color are not “in the loop,” they do not receive timely information about these opportunities. Institutions should devise multiple methods of advertising and purposefully connecting to students of color.

2) Institutions should examine deadlines to determine how they might impact graduate students of color.

Assistantship deadlines have a purpose. They serve to provide guidance to students in completing all necessary documents and to allow sufficient time for the evaluation of those documents. Institutions should examine their deadlines to ensure that they are not arbitrary and that they support the intent of the application process. Similar to the suggestion above, students of color may not hear about assistantships until near the close to the deadline for submission of materials. This can result in incomplete applications which may automatically eliminate them from consideration. Institutions must not only publicize the availability of assistantships, but should also look for ways to ensure that all students have the opportunity to submit complete documentation.

3) Institutions should provide information on debt counseling.

Many graduate students (27%) are first-generation students (Bell, 2008). These students may not recognize some of the pitfalls of borrowing money. Institutions should consider offering debt counseling to these students to educate them about the pitfalls of student loan borrowing. This type of education could take place as part of a graduating senior capstone class or as part of an introductory graduate course. This would also be an opportune time to promote the availability of graduate assistantships.

4) Institutions should create opportunities for students to interact with faculty.

The “chilly climate” has been discussed in numerous studies when identifying barriers to minority participation (Turner & Myers, 2000). Quite often graduate students of color, particularly those at predominately white institutions, are not comfortable in approaching faculty about possible assistantship or scholarship opportunities. Institutions should create structured opportunities for faculty and student interaction. These could range from informal luncheons to the assigning of multiple mentors who would address the various elements that comprise a successful doctoral experience. Multiple mentors could address the areas of academic preparation and studying, personal issues, and institutional politics. Having more than one mentor provides a larger network for the student and provides multiple perspectives on the institution and the meaning of success.

Participation of students of color in graduation programs is important to most colleges and universities. Therefore, it is incumbent on institutions to examine the participation rates of students of color and to look at potential barriers they may face. As suggested in this study, finances are a major barrier to students of color. Policies on the awarding of institutional

dollars in the form of assistantships and fellowships should be reviewed for equitable distribution. Institutions should examine their financial aid and assistantship awarding process to expose any policies that may inadvertently result in a disparate impact on African American students.

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Branding Access Through the Carolina Covenant: Fostering Institutional Image and Brand

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This study analyzes the potential of major financial aid initiatives to serve as key elements of an institutional branding strategy. Concepts of branding and marketing serve as guiding frameworks for the analysis and interpretation of the findings. Using a case study approach, data were collected through interviews and document analysis at the University of North Carolina at Chapel Hill. The findings demonstrate the ability of financial aid to serve as a key component of institutional image and improve a university's competitive position while also ensuring the access benefits inherent in supporting low-income students. The implications of this work provide an additional rationale for increasing financial aid budgets and substantiate proof of the market's ability to improve access.

The higher education literature in recent years describes the influence of increased competition and market forces as manifested by the pursuit of rankings, prestige, and resources (Brewer, Gates, & Goldman, 2002; Newman, Couturier, & Scurry, 2004; Slaughter & Rhoades, 2004; Zemsky, Wegner, & Massy, 2005). The discussion of financial aid within this context focuses on the role of merit aid and the use of financial aid in attracting the most desirable students whether they are desirable academically or because of their ability to pay (e.g., McPherson & Schapiro, 1998). Public colleges and universities in particular rely on their advantage of lower tuition and accessibility to attract students from a broad spectrum. The current environment of higher education demands that colleges and universities value and employ marketing strategies including the business concept of branding (Kittle, 2000; Toma, Dubrow, & Hartley, 2005). In this research, we explore how financial aid and financial accessibility play a role in the creation of an institutional image. We consider how a prominent financial aid program, The Carolina Covenant, at the University of North Carolina at Chapel Hill (UNC-Chapel Hill) can be incorporated into efforts to market the institution in the minds of students and the broader community.

Review of the Literature

Due to the unique role of state universities in an environment of limited resources, an inevitable tension exists between educational quality and access as evidenced during tuition and funding debates (Hauptman, 1990; Hearn & Anderson, 1995; Seneca & Taussig, 1987; Serban & Burke, 1998).

If a state university requires additional revenue to maintain the quality of its undergraduate programs, the attractiveness of a tuition increase

depends, among other considerations, on the extent to which the higher tuition will discourage applications from low-income and minority families in the state (Seneca & Taussig, 1987, p. 25-26).

The effect of tuition increases on access represents a significant concern for institutions, particularly public colleges and universities that historically enroll a higher percentage of low-income students. “While microeconomic theory demonstrates a downward-sloping demand curve” as tuition rises “the impact of tuition charges may vary depending. . . [on] other factors” (Heller, 1996, p. 8). If increasing public tuition and the outside factors Heller describes decrease the college participation of underserved low-income and minority populations, these students may not have other options available for attaining a college degree. Baird (2006) agrees that if institutions want to create greater access, they should identify policies that “best promote college attendance for those currently underrepresented” (p. 34). Furthermore, tuition and federal financial aid policies are only part of the solution and institutions ought to reevaluate the use of state need-based financial aid programs. She finds that expanding need-based financial aid programs represents one of the most effective strategies for promoting college access. According to Spaulding and Olswang (2005), institutional changes in financial aid packaging and marketing strategy have resulted in improvement in admission yield.

The Carolina Covenant

UNC-Chapel became the first public university to offer a financial aid program replacing loans with grants. The program emerged in 2003 as an institutional response to mitigate concerns regarding student debt and access for low-income populations. Combining scholarships, grants, and work-study, UNC-Chapel Hill could guarantee the promise to admitted, full-time low-income students to graduate with a bachelor’s degree without accumulating loan debt. Non-resident students are also eligible for the Carolina Covenant program. No additional application is required beyond submission of the Free Application for Federal Student Aid (FAFSA) and the College Board’s PROFILE application. Lastly, there is no limit to the number of Covenant Scholars awarded each year.

The program’s financial success rests on leveraging an array of federal, state, and institutional aid to meet the full financial need and combat the concerns of reduced access due to inability to pay. Various prominent universities followed suit with similar programs with all of them designed to reduce the economic disparities by removing price and debt as barriers.

Conceptual Framework

As noted in the business literature, firms use branding to differentiate their product from others in the marketplace (Aaker, 1991, 1996). Branding can be applied to higher education, although it has seen limited application in the literature to date (Toma, Dubrow, & Hartley, 2005; Sevier, 2001). Little research exists on how the marketing approach of student financial aid programs influences students’ enrollment behavior (Perna, 2005). The literature on higher education branding largely addresses broad generalities with few empirical studies on the current activities of universities to

market themselves as a brand (Fickes, 2003; Moore, 2004). Aaker (1991) defines a brand as a “distinguishing name and/or symbol” used to identify and distinguish between competitors (p. 7). Branding is a multidimensional concept that can often serve as a key means of differentiation for consumer decision making (Aaker, 1996; Keller 2003). Brand image, which is a collective set of perceptions consumers associate with a given brand, serves as a key notion for this study (Keller, 1993). The perceptions of external audiences about the university can impact any number of university initiatives from student recruitment to state appropriations. For this study, we use the concepts of image and branding to understand how a university can use a signature financial aid initiative to create and foster an institutional image of providing access as part of the brand.

Colleges and universities use a number of marketing and business strategies to attempt to differentiate themselves within the crowded postsecondary marketplace. These efforts often center on the admissions and student recruitment processes through the use of targeted marketing campaigns substantiated by brochures, view books, and other printed materials. In addition to these traditional avenues, marketing efforts are increasingly using technology with a strong web presence or use of DVDs. Whether using print or technology based materials, colleges employ a variety of aspects of their brand and image to attract and influence student opinions. Logos, mascots, and school colors are among the most commonly used aspects of image that are leveraged. There are less tangible or obvious aspects of the institution that can be tapped to improve market position and brand image. The scholarly literature has not sufficiently explored the ways that culture can be used or “branded” to improve the competitive position of an institution (Toma, Dubrow, & Hartley, 2005). More specifically, how might an institution and financial aid office that has a strong organizational culture supporting access and affordability leverage that culture to create a brand by selling the idea of accessibility to low-income students.

Methodology

This study utilized an interpretive perspective where we focused on the key decision makers at the institution and explored the university’s image. Two factors influenced site selection. First, although many schools have subsequently initiated such programs, the Carolina Covenant was the first at a public university (Pallais & Turner, 2007). UNC-Chapel Hill also has a long history of low tuition and affordability. This comprises part of their larger national image and brand as evidenced by the school’s consistent top rating in Kiplinger’s “Best Value” rankings and the touting of this by the institution. The following research question guided our study of the Carolina Covenant program and its ability to play a role in the university’s image: How do campus leaders view the Carolina Covenant within the context of the institution’s strategy to improve its prestige and ability to recruit high quality students?

We used a qualitative design in order to focus on the views and decision-making of participants, which are answered through qualitative methods (Merriam, 1998). We conducted interviews with 24 senior administrators, faculty, and student leaders at UNC-Chapel Hill. Additionally, we examined

institutional documents including internal memoranda; meeting agendas and minutes; mainstream and student media accounts; and public statements.

All interviews were conducted in-person in North Carolina during three site visits. Each interview was guided by a series of questions, which we asked using an open-ended interviewing approach. The interview protocol (see Table 1) was designed to elicit responses from participants. We also used the snowball technique to find additional people who could provide pertinent information for this study. As described by Bogdan and Biklen (1992), near the conclusion of each interview we asked the interviewee if there was anyone else we should speak with to gain additional insight.

The data analysis occurred simultaneously with data collection, interpretation, and writing of the study (Merriam, 1998). The two primary modes of data analysis were (1) searching for patterns by comparing results with patterns predicted from the literature; and (2) explanation building by identifying the causal links and/or plausible or rival explanations in order to build an explanation about the case (Yin, 1994). Coding into categories assisted in identifying the important categories and themes that our research uncovered. By examining multiple sources and types of data, we used triangulation to ensure the dependability of our data. In order for a case study to be considered transferable, it must contain enough detail for an external reviewer to understand the situational details and their rel-

Table 1: Interview Protocol

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1. What factors pushed UNC to implement the Carolina Covenant?
 2. What changes were necessary both within financial aid and throughout campus to implement the program?
 3. How successful were aid packages before the Carolina Covenant?
 4. What is the primary benefit of the program?
 5. What role did allocating part of tuition increases to financial aid play?
 6. How has the Covenant been marketed?
 7. How have internal and external stakeholders responded?
 8. How has the program changed perceptions of potential students if at all?
 9. How does the Covenant fit within the institution's larger culture, mission, and image?
 10. What future challenges do you anticipate?
-

evance to other situations. Lincoln and Guba (1985) suggest that the only way to establish transferability is to create a detailed description of the case study's context so that others in a different situation can assess the similarities and differences to their own situation.

Results

The findings of this research suggest that the initiation and implementation of the Carolina Covenant program focused on larger questions of messaging and image. A central theme of the data focuses on the value placed on the program to send a signal about the institution to low-income students and the broader community. The Carolina Covenant is a financial aid initiative started by UNC-Chapel Hill to provide an undergraduate education to low-income students without the use of loans. Through a combination of federal, state, and institutional grants packaged with a 12-14 hour federal work study position, the program meets 100 percent of need without the use of loans. The university communicates the message to students that if you meet the academic requirements for admission, finances will not be a barrier to attendance. The Covenant is similar to a program first instituted by Princeton University to eliminate loans for needy students. Princeton's move created a ripple effect through the ranks of prestigious private universities to decrease the loans taken by low-income students. Following the program's announcement and over the last few years, public and private institutions across the country created similar initiatives including the University of Virginia, University of Pennsylvania, and Indiana University. This wave of creating major no-loan programs for low-income students represents one of the first and perhaps most prominent examples of the role of competition improving need based financial aid and access to higher education.

Building an Initiative to Publicize

The challenges of developing major loan programs are rarely limited to policy fundamentals alone. Bridging critical areas of institutional image with public perception strengthens an initiative's impact. The case of the Carolina Covenant provides an insightful example into the creation of one of these programs and also how it can be used to influence institutional image. Beneficiaries of major financial aid programs symbolize institutional outreach and the embodiment of the public good of higher education. An academic administrator explained the initial thought process behind the program:

We got so frustrated by all of the data. We have a very strong commitment to need-based aid and to a very high percentage of grants for needy students. But we got very frustrated that market studies that we would do continued to show that individuals who needed aid vastly overestimated the cost of a Carolina education.

Furthermore, the competition for students between public and private institutions only serves to complicate the process. "Very often, students thought it was the same as Duke. I guess it's a basketball thing. No, they see two, high-quality institutions; they assume we cost the same."

A financial aid administrator complained about how “the media has a way of creating a perception that was detouring kids from applying who were from low socioeconomic groups.” The institution through a combination of state and federal grants largely met the needs of low income students but lacked a marquee to publicize these efforts. “We were already committed to meeting need. We were meeting 100 percent of the need of the students before this program was announced,” a financial aid counselor explained. “What the Covenant formalized was a public commitment to this.”

Financial support for the Covenant hinges largely on revenue streams from both federal and state sources. Indeed, a major grant program expanded by the state provided a key source of revenue for the university to leverage in support of the initiative. The creative use of institutional revenue proved vital in securing sufficient funds in protecting low income students despite several rounds of tuition increases. As a senior student affairs administrator shared this perspective.

Tuition increases are marked so that a percentage of the increases go to need based aid. So, initially it wasn’t driven by the tuition. It was initially driven by the fact that the University had been placed in a very advantageous position with regard to need based aid. Now, knowing that need based aid is a combination of Federal/State as well as institutional resources. It’s not all Carolina’s resources. It’s that combination and tuition is a part of that.

By setting aside a percentage of tuition increases, the university provides not only financial resources for low income students, but also symbolizes a strong institutional commitment to preserving access in an environment of escalating tuition.

UNC officials believed that the financial aid office did a “tremendous” job in packaging the various aid sources including restricted and unrestricted funds to eligible students to maximize the amount of funding available. However, the individual successes were not able to be leveraged sufficiently to assist in the broader recruitment and enrollment management goals. Branding the university’s commitment to low-income students in the form of a named program distinguished Chapel Hill’s access endeavors. An enrollment management administrator described the financial aid situation prior to the announcement of the Carolina Covenant.

We said—you’re doing all this little work over here, and great work over there, and all these little pockets of success, but you’re not getting recognition for it. If you could package it under one banner, put a big brass plaque over the door and say, “This is what we’re doing.”

Branding the university’s commitment to low-income students in the form of a named program distinguished Carolina’s access initiative from prior efforts.

Commit and Communicate to Low Income Students and Stakeholders

The decision to make such a public commitment to low income students required an understanding of the role of Carolina's brand which is tied directly to the "best buy" distinction the institution routinely receives in popular media outlets such as *U.S. News and World Report* and *Kiplinger's*. "Carolina has a philosophy of accessibility and that means we need to be sure that these low-income students know they can come here. Yeah, a lot of universities succumb to the temptation of *US News and World Report*," reported an enrollment management administrator.

Several administrators echoed the sentiments of an admissions representative who claimed the Covenant was an initiative that is "consistent with the university's emphasis on equity, not just excellence, but on equity." The primary benefit of the program touted by almost all of the interviewees with whom we spoke was its use as a vehicle to communicate to potential students and the broader community. A financial aid administrator described this thought:

Actually, what the Covenant did was to formalize and say to the state and nation that economically disadvantaged will not be a reason why you cannot enjoy the educational experience of Carolina. That's basically what that is and they formalized the structure so that there is a public commitment to low income populations. We want people to know that you can come here and very much cognizant of the perception of this place as an elitist university. It may be elitist in terms of rankings and all, but it's not an economic elitist institution. We wanted to address that.

Campus leaders viewed the Covenant as both a "substantive" in terms of guaranteeing the financial aid for the student, but also critically its symbolic role. Admissions and recruiting professionals saw some immediate influences after the publication and marketing of the program.

The beauty of this is that it's rolling right over all those old perceptions. So, I think our low-income population's actually going to increase, but it's not related, necessarily to the high tuition. In fact, we found a way to combat, at least for low-income students, the constant barrage of newspaper articles about college not being affordable, and that is to simply create a program. Where we shout to the world that if you can get in and you're in a low-income family, you can come without taking a loan.

The decision to make such a substantial commitment to low income students required an understanding of the role of UNC's image.

Implications

The findings of this study provide an interesting approach for financial aid within the new competitive higher education marketplace. Financial aid has traditionally been considered an aspect of fulfilling the public good function of access regardless of economic status. With the rising importance placed on the private benefits of higher education including career

placement and future income, the public good function has been deemphasized in favor of rising tuition and student loans. UNC Chapel Hill provides a case study for the power of financial aid to influence the institution beyond this traditional role. Much of the UNC brand is based on its low tuition and first in the nation public university status. This is fostered by the magazine rankings that consistently refer to the institution as a “good buy” for its combination of academics and costs.

The creation of the Carolina Covenant as a signature financial aid program for the university fostered the UNC image of affordable high quality education. Even for those students who will never be eligible for the program, the concept furthers the affordability notion associated with the university. This is also aided through the university’s use of its institutional television spot aired during broadcasts of its football and basketball games. During the commercial, the head basketball coach Roy Williams, a revered figure within the university and the state that is obsessed with basketball, described the Carolina Covenant program and how central it is to the idea of the University of North Carolina. The marketing of the program nicely complements the established UNC brand reinforcing the idea for students and the public. Furthermore, the program demonstrates the possibility of using signature financial aid and other access-focused initiatives to support low-income student participation. The strategic use of financial aid increases prestige, but typically decreases access for this population (Avery, Fairbanks, & Zeckhauser, 2003). However, these programs hold the potential for changing this dynamic and deserve additional consideration.

Conclusion

Obviously, not every university will have the financial resources to implement a program as far reaching as the Carolina Covenant. There are still lessons to be learned from the UNC case for financial aid administrators. First, in those institutions where access is a central element of image and an area influential in the recruiting of students, financial aid should be included as part of the institution’s marketing and promotional strategies. This should not simply include broad promises of affordability and access. Indeed, additional research should examine the effectiveness of these programs in attracting and retraining low-income students as currently only limited data exists (Tebbs & Turner, 2006). Successful branding and image requires both the style and symbolism of marketing but also tangible outcomes that further supports the university’s image. The creation of a signature program such as the Covenant is beneficial in marketing because of the simplicity of the message as well as the powerful influence such a commitment has on potential students.

Placing financial aid as a central aspect of a branding and marketing campaign, financial aid administrators create an additional incentive for increasing the institutional resources allocated for scholarships and grants. Aid in this context becomes more than support for an individual, but an aspect of improving the institution’s image, which in turn increases success in future recruitment and other endeavors. The case of UNC-Chapel Hill also shows the value and necessity of an organizational culture supportive of financial aid and the ability to communicate with future students. With

the established notion of affordability associated with UNC prior to the Carolina Covenant, the program had fertile ground to improve the association between the institution's image and its brand.

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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.

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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.

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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.

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Articles should be submitted in Microsoft Word or WordPerfect format via email to jacob.gross@louisville.edu or on a CD mailed to Jacob Gross, Assistant Professor, College of Education and Human Development, University of Louisville, Room 338A, Louisville, KY 40292. 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 Gigi Jones at NASFAA, (202) 785-6943.

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