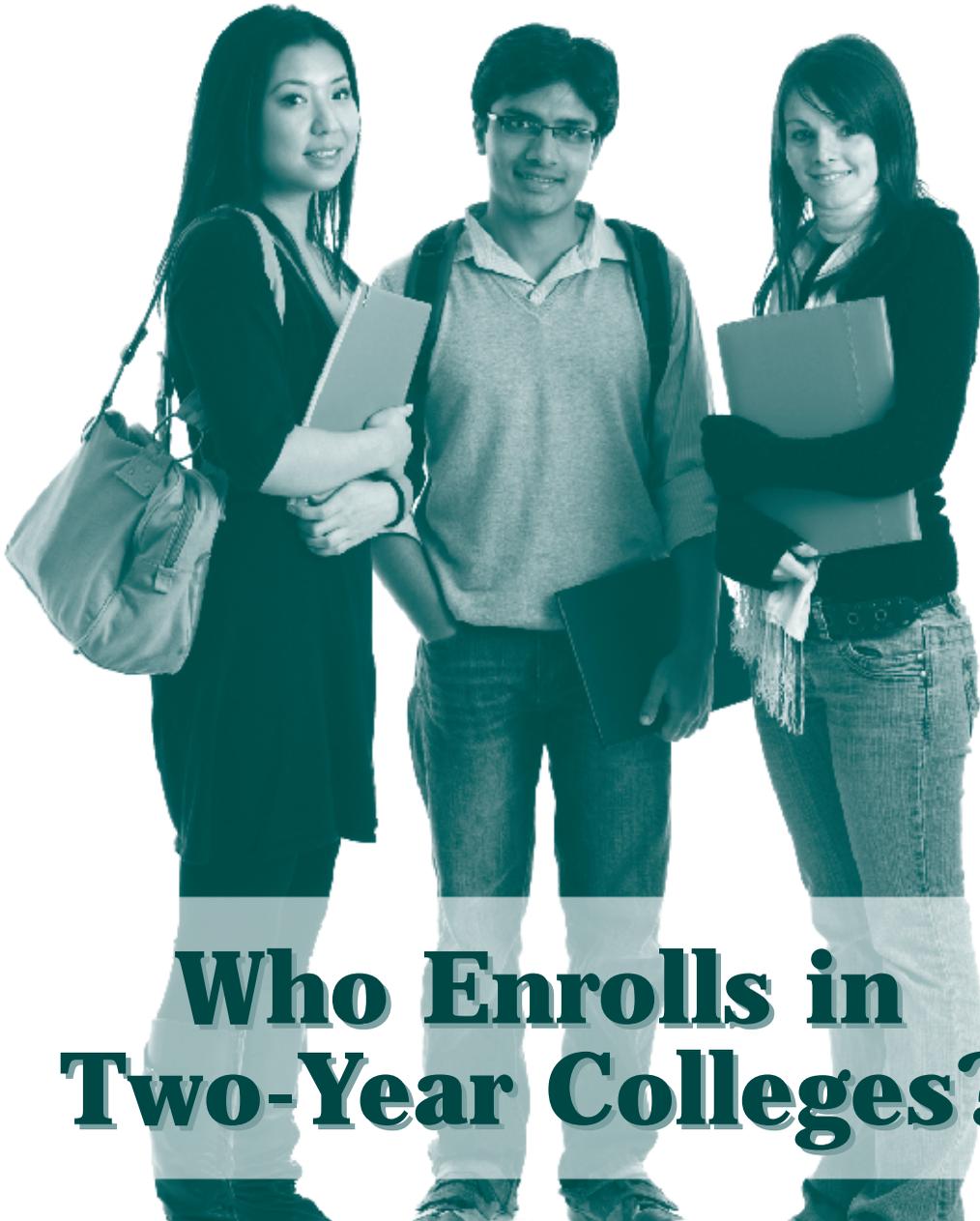


Journal of Student Financial Aid

Volume 39, Number 1

2009



Who Enrolls in Two-Year Colleges?



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Editor's Column: Addressing the Recession

It's news to no one that the United States – and, indeed, the world – has experienced in the past year the most profound economic downturn since the Great Depression. Some analysts say that the economy is beginning to recover from the “Great Recession,” but the lasting effects on employment will be with us for some time into the future.

For financial aid administrators, the nation's economic woes are seen every day in the lives of our students and their families. Students have great difficulty finding part-time jobs. Some parents and independent students have lost employment; others have had wages cut or overtime pared, or have found net revenue from self-employment to be shrinking. Some of the unemployed have turned to postsecondary education in search of retraining or new direction in their lives. Assets held in investments and real estate have dropped in value. Bank accounts and personal credit have been depleted to try to bridge shortfalls in living expenses.

There are several ways that aid administrators can help students and their families cope with the current economic situation. From the time the particulars of need analysis were written into the Higher Education Act in 1968, aid administrators have had the authority to exercise professional judgment:

“[O]n the basis of adequate documentation, to make adjustment on a case-by-case basis to the cost of attendance or the vales of the data items required to calculate the expected student or parent contribution (or both) to allow for treatment of an individual eligible applicant with special circumstances” (Section 479A [20 USC 1087tt]).

NASFAA has provided guidance on professional judgment through publications and Webinars:

- Monograph Number 20, *Developing the Cost of Attendance* (June 2007), the fourth revision on the topic, helps aid administrators formulate appropriate student expense budgets and describes circumstances in which the budget side of the need formula can be adjusted to accommodate students' special circumstances.
- Monograph Number 22, *Professional Judgment in Eligibility Determination and Need Analysis* (May 2009), the sixth revision on the topic, discusses need analysis principles to help aid administrators understand the basis for reviewing family financial data, the manifold considerations that affect ability to pay for postsecondary expenses, and the variety of materials used to document changed circumstances.
- In June 2009, NASFAA presented a Webinar, *Professional Judgment: It's Still Your Decision*, to further explain the authority aid administrators have.

The U.S. Department of Education, in an April 2, 2009, “Dear Colleague” letter (GEN-09-04) reminded aid administrators of the latitude permitted them under the professional judgment provisions of the law. Issuing such a broadcast communication reflects the federal government’s concern for the economic plight in which some students and their families find themselves. Dear Colleague letters focused on students in particular situations, such as those affected by natural disasters, have been issued in the past, but the April 2009 letter shows the gravity of concern for the economic stresses that currently affect so many.

In the past, some administrators have shied away from exercising professional judgment. The reasons included inadequate staffing, concern for exceptions in audits, and not having enough financial aid funds. Others, concerned for public perception of their institutions, have not wanted to recognize additional need that they may not be able to meet or to add to the burden of institutional aid budgets. Some of these reasons may be valid while others are not, but if ever there were a time for aid administrators to consider individual students’ situations, make adjustments in budgets and need determinations, and work to find the extra resources to provide access, address increased need, and help retain students in school, now is that time.

In this Issue

- Timothy Stokes of Tacoma Community College and Patricia Somers of the University of Texas at Austin consider what influences the postsecondary enrollment decisions of students, with a special focus on those choosing a two-year institution.
- Jacob Gross, Osman Cekic, Don Hossler, and Nick Hillman of Indiana University provide a review of research literature related to student loan defaults and summarize the findings of the most pertinent studies.
- Jeffrey Kash and Scott Lasley of Western Kentucky University review the merit-based Kentucky Education Excellence Scholarship program, examine its outcomes and demographics, and make recommendations for revisions.

Transitions

The Journal of Student Financial Aid benefits greatly from the work of the volunteers who serve on the editorial board. We note with thanks the past service of Emily Attridge of the Stetson University College of Law, Daniel Barkowitz of Columbia University, Natala Hart of the Ohio State University, Annita Huff of Washburn University of Topeka, Bridget Terry Long of the Harvard Graduate School of Education, and Carlia Smith of the University of Arkansas System. We are grateful to welcome to the editorial board Jacob Gross of the West Virginia Higher Education Policy Commission and Indiana University and Alicia Harris of Oklahoma City Community College.

Joe Paul Case
Editor, October 2009

Who Enrolls in Two-year Colleges? A National Study of Price Response

by Timothy Stokes and Patricia Somers

Timothy Stokes is Dean of Tacoma Community College, in Tacoma, WA. Patricia Somers is Associate Professor of Higher Education for the University of Texas at Austin

The authors examine the factors that influence the college choice process of two-year college students and explore the effect these variables have on the two-year/four-year college choice dichotomy, using the National Postsecondary Student Aid Study (NPSAS) of 1995-96 and the Beginning Postsecondary (BPS) component of that survey. This study provides new insight into the influence that background characteristics, aspirations, high school experience, college experience, price and subsidy, and beginning postsecondary variables have on a student's decision to attend a two-year college as compared to a four-year institution. The study finds that ethnicity, location, high school degree attainment, educational achievement (as measured by high school GPA and ACT score), tuition and fee rates, net cost, and campus climate are the most influential variables influencing a student's decision to attend a two-year college.

Two-year colleges have become the institutions of choice for individuals who enroll in public higher education. In 2003, for example, forty-three percent of all students in public institutions attended two-year colleges (*Profile of Undergraduate Students*, 2007). The two primary factors that influence students' decisions to enroll in a two-year college are cost and location (Somers, Bauer, Haines, Keene, Pfeiffer, McCluskey, Settle, & Sparks, 2006); however, there may be other significant factors to consider when assessing a student's college choice decision.

Two-year colleges assert that they are mechanisms of access for many individuals who would not otherwise pursue higher education, and this is an important component in their mission. The diversity of the student population is a powerful market force that is positively affecting community colleges.

Research on the college decision-making process focuses almost exclusively on the factors that influence the "college choice" of students attending four-year colleges and universities. This research has led to the development of theoretical models that explain the decision-making process of students seeking four-year bachelor's degrees. No attempts have been made to use the existing "models of choice" to determine whether the factors influencing college choice of students attending four-year colleges and universities also pertain to students attending two-year colleges.

This study examines factors that influence whether students choose to attend a two-year college. We developed a model that may be applied to two-year college choice, explored the factors that significantly influence college choice among students attending two-year colleges, and examined how these variables are associated with a student's decision to attend a two-year college versus a four-year institution.

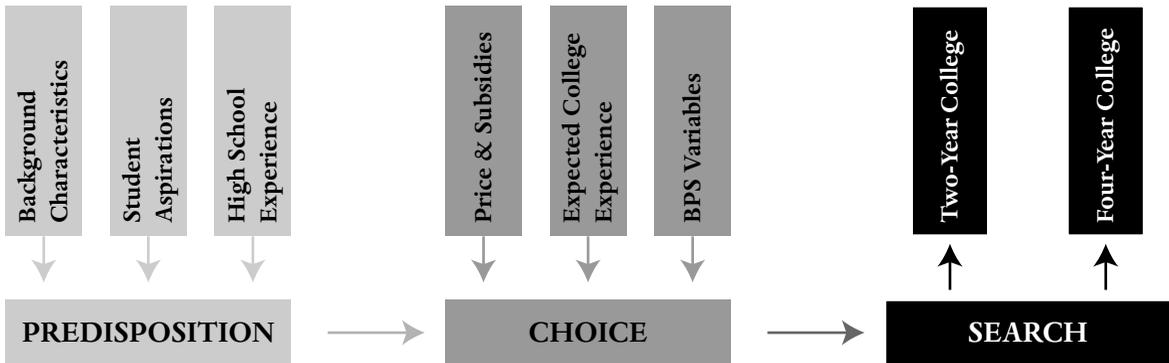
Review of Literature

Much of the research on student decision-making employs economic and sociological theoretical frameworks to examine the phenomenon of college choice (Hearn, 1984; Jackson, 1978; Tierney, 1983). These frameworks have been used to develop conceptual models of the choice process.

There are three strands of theoretical approaches used to examine the college choice process. These three strands produce 1) economic models, 2) status-attainment models, and 3) combined models.

We chose a combined model for our study. The factors most commonly associated with a comprehensive college choice model include student background characteristics (Hanson & Litten, 1982; Jackson, 1982), aspirations (Chapman, 1984; Hossler et al., 1989; Jackson, 1982), educational achievement (Hanson & Litten, 1982; Jackson, 1982), social environment (Hossler & Gallagher, 1987), financial variables (St. John, 1990, 1991; Somers, 1993), net cost (Chapman, 1984; St. John & Starkey, 1995), institutional climate (Chapman, 1984; Hanson & Litten, 1982), and institutional characteristics (Hanson & Litten, 1982; Hossler et al., 1989).

We use the comprehensive college choice model shown in Figure 1:



This model is based on a three-stage college choice process. It includes all of the previously identified factors that have been found to influence the college choice process.

Research Questions

We examine factors that influence the two-year college choice process of students using the National Postsecondary Student Aid Survey, 1996 (NPSAS:96) and the Beginning Postsecondary Survey (BPS) datasets. The following questions guided this study:

- What factors (background, aspirations, high school experiences, college experiences, price and subsidies, and Beginning Postsecondary Survey variables) significantly influence the decision to enroll in a two-year college?
- How much variance do these factors explain in the two-year/four-year choice dichotomy?

Method

Data

The source of data for this analysis is the restricted version of the National Postsecondary Aid Study (NPSAS:96), a nationally comprehensive sample of students enrolled in postsecondary education in 1995-96. Included in NPSAS:96 is a sample of first-time postsecondary students (of all ages) who make up the Beginning Postsecondary Student (BPS) longitudinal study cohort.

Sample

The total number in the sample for this study is 6,351: 1,814 students who chose a two-year college and 4,537 students who chose a four-year college. Caucasian students comprise 68 percent of the two-year college sample and 73.4 percent of the four-year sample. African American students comprise 14.2 percent of the two-year college sample and 10.4 percent of the four-year college sample, while Latino students make up 12.4 percent of the two-year sample and 8.4 percent of the four-year college sample. All other ethnic groups comprise 5.5 percent of the two-year sample and 7.4 percent of the four-year sample.

In terms of gender, 45.8 percent of the two-year college sample is male and 45.4 percent of the four-year college sample is male. Thus, females comprise a majority of both the two-year and four-year sample.

Most of the students are under the age of 22, comprising 74.8 percent of the two-year sample and 96.7 percent of the four-year sample. Those over 22 comprise 23.1 percent of the two-year sample and 3.3 percent of the four-year sample.

Model

The model for this study examines the nexus between student background characteristics (17 variables), student aspirations (2 variables), high school experiences (9 variables), college experience (8 variables), price and subsidies (8 variables), debt load (4 variables), and BPS/choice questions (5 variables) (Table 1).

Statistical Method

The statistical method consisted of two steps. First, an ANOVA was performed on the 88 BPS/college choice variables to determine which variables were a best fit for the model. Five variables were significant (.05) for both two- and four-year students. The second step in the statistical method was to perform a logistic regression analysis with the complete model (Table 2). The outcome variable was whether or not a student enrolled in a two-year college. Because of the large sample size, we set our significance level of $p = .001$ (see Thomas & Heck, 2001 for further consideration of working with large databases).

Whether a student chooses a two-year or a four-year college, the outcome is dichotomous: either yes or no (coded as 1 or 0). The resulting graph of the relationship is not a straight line, but a curved line bounded by 0 and 1. Regardless of the values of the constants β_i or the variables X_i , this equation still results in values between 0 and 1 because of the properties of the natural logarithm. The value P can also be thought of as a probability measure that the outcome variable will be 1 (yes). This is precisely what a dichotomous model requires (Cabrera, 1994; Menard, 1995).

Results

Two research questions are the focus of this inquiry. Based on the findings of this study, the results for each question are addressed separately.

Question One

What factors (background characteristics, aspirations, high school experience, college experience, price and subsidies, debt variables, and Beginning Postsecondary Survey variables) significantly influence the decision to enroll in a two-year college? Of these factors, 27 are significant at the $p \leq .001$ level.

Background. In the background category six variables are significant. Two ethnicity variables are significantly associated with the two-year choice decision. These variables indicate that Latino students and students listing their ethnicity as “other” are less likely to choose a two-year college. Only one dependency variable is significant, indicating that independent students are more likely to choose a two-year college. Along the same lines, one variable pertaining to parent’s educational attainment is significant; students whose fathers had no higher education are more likely to attend a two-year college. Also in the background category, two location variables are significant. Students who choose a college that is over 100 miles from home are less likely to attend a two-year college while students who choose a college less than 30 miles from home are more likely to attend a two-year college.

Aspirations. In the aspiration category, degree expectation is the only variable that is significant in the two-year / four-year choice dichotomy. Students whose educational goal is an associate's degree or a bachelor's degree are more likely to choose a two-year college than those students aspiring to an advanced degree.

High school experience. Seven variables in the high school experience category are significant. Students with no high school degree are more likely to attend a two-year college when compared to students who completed a GED or a high school certificate program. Students who obtain a regular high school degree are also more likely to attend a four-year college.

High school achievement as measured by a student’s GPA is also a variable associated with two-year college choice. Students whose GPA is between 1.75 and 2.75 are more likely to choose a two-year college when compared to students with slightly higher or lower GPAs. Similarly, a student whose ACT score is below 21 is more likely to attend a two-year college while a student whose ACT score is above 21 is less likely to choose a two-year college.

College experience. Five variables in the college experience category are significant. A college’s reputation is significant in the choice dichotomy. A student is more likely to choose a two-year college if it is perceived by the student to have a good reputation.

Residency, i.e., living on or off campus, is also significant in the choice decision. Students wanting to live on campus are less likely to choose a two-year college while students wanting to live off-campus are more likely to attend a two-year college.

Although the amount of time a student works is statistically significant for all students, those who work full-time (more than 35 hours a week) are somewhat more likely to choose a two-year college than those who work part-time or do not work.

Price and subsidy. Five variables in the price and subsidy category are significant. Students who pay high ($\geq \$4,054$) and medium (between \$1,959 and \$4,053) tuition and fees are less likely to attend a two-year school, while students who pay low ($\leq \$1,958$) tuition and fees are more likely to choose a two-year college.

Two net cost variables are significant. Students who have a high net cost of attendance ($> \$3,206$) are less likely to choose a two-year college. Similarly, students who have a low net cost of attendance ($< \$1,697$) are also less likely to choose a two-year college.

Debt variables. None of the debt variables is significant in the two-year/four-year choice dichotomy.

BPS variables. Three of the BPS variables are significant to the choice dichotomy. Two of the BPS climate variables are significant, including the ability to meet with an academic advisor and talk to a faculty member outside of class. Students who found these important are less likely to choose a two-year college.

Only one of the BPS goal variables is significant to the college-choice dichotomy. Students who indicate that the ability to succeed in a career is an important factor in the choice decision are more likely to choose a two-year college.

Question Two

How much variance do these factors explain in the two-year/four-year choice dichotomy?

The results of the regression analysis reveal highly significant associations among some of the factors examined in this study and a student's decision to enroll in a two-year college. While the presumption of cost and location are two factors that typically influence a student's decision to enroll in a two-year college, this study finds that there are other factors that significantly influence the college choice decision.

Background. One of the background characteristics that significantly influence the two-year college choice decision is ethnicity. Both the Latino sample and the category including all other ethnic groups besides Caucasian and African-Americans are negatively associated with the two-year choice decision. These minority groups are less likely to choose a two-year college over a four-year college.

In addition, females are 2.8 percentage points less likely to attend a two-year college than males. Independent students are 8.4 percentage points more likely to choose a two-year college versus a four-year college.

With the belief that location is important in the two-year college choice decision, distance from home is a significant factor. Students who travel more than 100 miles from home are 7.1 percent less likely to be attending a two-year college while students traveling less than thirty miles from home to attend college are 3.9 percent more likely to attend a two-year college.

High school experience. Educational achievement has long been a factor in college choice research (Blau & Duncan 1967; Parsons, 1959; Sewell, Haller & Portes, 1969; Sewell & Shah 1978). This study suggests that students who possess a high school diploma are 11.7 percentage points more likely to attend a four-year college than a two-year college. In addition, students who do not hold a high school diploma are 18.2 percentage points more likely to attend a two-year college than a four-year college. Thus, the notion that two-year colleges offer expanded access to students who traditionally would not or could not attend college is confirmed by this research.

Furthering this notion that higher educational achievement equates to a higher, more selective college going rate, students who reported having taken an advanced placement exam are 25.4 percentage points less likely to attend a two-year college.

College experience. In this category, a student's desire to live on or off campus is the most influential factor on two-year college choice. Students who want to live on campus are 23.8 percentage points less likely to attend a two-year college. On the other hand, students who want to live off-campus are 16.4 percentage points more likely to attend a two-year college than those wanting to live on-campus.

Price and subsidy. The influence of tuition and fees is significant in this study. High tuition (>\$4,054) has a negative impact on the two-year choice decision. Students who pay high tuition and fees are 17.5 percentage points less likely to attend a two-year college. Students who pay tuition between \$1,959 and \$4,053 are 31.7 percentage points less likely to choose a two-year college, and students who pay low tuition (<\$1,958) are 16.3 percentage points more likely to choose a two-year college.

Along the same lines, students who pay a high net cost (tuition and fees minus subsidies >\$3,206) are 17.5 percentage points less likely to choose a two-year college, while students who pay a low net cost (tuition and fees minus subsidies <\$1,697) are 6.1 percentage points more likely to choose a two-year college.

BPS variables. Of the BPS variables, academic advising is the most influential on two-year college choice. Similar to the findings for Question One, a student who wishes to meet with an advisor about academic plans is six percentage points less likely to choose a two-year college. This factor suggests that students who place a high priority on traditional academic advising and mentoring are more likely to attend a four-year college (Hossler, Schmit et al. 1999).

Discussion

The finding regarding racial and ethnic background is surprising and contrary to expectations. While few college choice models have been applied to two-year college choice, the notion that two-year colleges are the colleges of choice for most minority groups is not substantiated by this study. One explanation for this finding may be that these minority groups continue to be underrepresented on college campuses at both two-year and four-year colleges. Moreover, college campuses have not fully realized the impact of newly passed anti-affirmative action measures on the college choice process or the college-going rate of minorities, which might affect minority college choice in the future.

Likewise, the finding regarding student's gender runs contrary to the expectation one would have about two-year colleges becoming the portals of access for higher education.

The finding regarding independent students, on the other hand, was anticipated. This relates to the notion that two-year colleges are more desirable to independent students who may be more price-conscious and have fewer opportunities to devote to full-time study at a four-year college. In addition, independent students often have more factors influencing their college choice process than dependent students have.

The finding concerning location affirms the idea that this is an important consideration in the two-year college choice decision.

In regard to educational achievement in high school, the findings support the idea that higher achievement in high school points to a greater likelihood that a student will attend college. Related to this, the findings support the notion that students who demonstrate higher educational achievement are less likely to choose a two-year college and are more likely to choose more selective, academically prestigious institutions.

Findings concerning price and subsidy confirm that students who choose a two-year college are extremely price conscious and that financial variables often figure in their decision-making process.

Summary

Thirty-two variables in this study significantly influence the two-year college choice decision at the $p \leq .005$ level. The most notable factors increasing the likelihood that a potential student will choose a two-year college are dependency status, educational achievement, employment intensity, price and subsidy, and the BPS variables. Students who are price conscious and have fewer resources available for college are more likely to choose a two-year college. The notion that two-year colleges are portals of access for many who could not or would not attend college because of price constraints is confirmed by the data in this study. In addition to price and net cost, a student's commitment to complete high school, moderate achievement in high school, lower achievement on standardized admissions tests, desire to live off-campus, independent status, and desire to hold a job while attending school make a student more likely to choose a two-year college.

Conversely, a student ethnicity of Latino, desire to live on campus, ability to pay high tuition and fees, paying a high net cost to attend, obtaining high educational achievement in high school and on standardized admissions tests, and the desire to meet with an advisor about academic plans are negatively associated with a student's likelihood of choosing a two-year college.

Implications for Further Research

To better understand the two-year / four-year college choice process, a longitudinal study would reveal whether certain variables hold constant over time or whether and to what extent governmental and institutional policies may impact the two-year college choice decision.

Other questions may also be explored in this regard. Do affirmative action court decisions influence whether minorities choose a two-year college over a four-year college? Do federal financial aid policies influence the role that price and subsidy variables play in the decision to enroll in a two-year college?

In addition, the application of the existing models of choice (Chapman, 1984; Hossler & Gallagher, 1987; Jackson, 1982; Hanson & Litten, 1982) to the two-year college choice decision should focus on which variables influence the different stages of the choice process. Use of a path analysis or structural equation modeling (LISREL) could further isolate those variables that influence each stage of the decision-making process.

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Table 1: Model Specifications and Variable Coding Scheme

Variables/Factors	Variable Name	Coding	Reference Criterion
Background Characteristics			
Ethnicity	African American	0=no 1=yes	Compared to Caucasian students
Ethnicity	Latino	0=no 1=yes	Compared to Caucasian students
Ethnicity	Other	0=no 1=yes	Compared to Caucasian students
Gender	Female	0=no 1=yes	Compared to male students
Age	Under 22	0=no 1=yes	Compared to students between 22 and 30
Age	Over 30	0=no 1=yes	Compared to students between 22 and 30
SES	Low income – less than \$30,000	0=no 1=yes	Compared to students with medium income
SES	High income – greater than \$50,000	0=no 1=yes	Compared to students with medium income
Dependency	Independent for financial aid	0=no 1=yes	Compared to dependent students
Marital status	Married	0=no 1=yes	Compared to single students
Mother’s Educational Attainment	Higher education experience	0=no 1=yes	Compared to no higher ed experience
Father’s Educational Attainment	Higher education experience	0=no 1=yes	Compared to no higher ed experience
Disability	Have any disability	0=no 1=yes	Compared to students without disabilities
Parent’s Choice	Parent’s higher education choice	0=no 1=yes	Selection variable
Counselor’s Choice	Counselor’s higher education choice	0=no 1=yes	Selection variable
Distance from Home	Distance=Low 0-30 miles	0=no 1=yes	Compared to medium distance from home
Distance from Home	Distance=High > 100 miles	0=no 1=yes	Compared to medium distance from home

Aspirations

Aspirations	College degree expected	0=no 1=yes	Compared to students with no aspirations for college degree
Aspirations	Advanced degree expected	0=no 1=yes	Compared to students with no aspirations for college degree

High School Experience

High School Degree	No high school degree	0=no 1=yes	Compared to students with a high school degree
High School Degree	GED or Certificate	0=no 1=yes	Compared to students with a high school degree
ACT Score	Missing	0=no 1=yes	Missing data
ACT Score	High = 21 or greater	0=no 1=yes	Compared to students less than 21
AP Test Taken	AP scores reported	0=no 1=yes	Compared to students with no AP Scores Reported
Reputation	Good reputation	0=no 1=yes	Selection variable
Institution	Private	0=no 1=yes	Compared to students attending a public institution
GPA	Low GPA= less than 1.75	0=no 1=yes	Compared to students with average GPA
GPA	High GPA= 2.75 or more	0=no 1=yes	Compared to students with average GPA
Degree Type	Non-degree seeking	0=no 1=yes	Compared to certificate seeking students
Degree Type	Degree seeking	0=no 1=yes	Compared to certificate seeking students
Residency	Live on campus	0=no 1=yes	Compared to students living off campus
Work	Work full-time = 35 or more hours	0=no 1=yes	Compare to students not working full-time
Attendance Pattern	Full-time	0=no 1=yes	Compared to part-time students
Remediation	Did the student receive remedial instruction	0=no 1=yes	Compared to students receiving no remediation
Friends Attend	Did friends attend	0=no 1=yes	Compared to students with no friend at inst.

Price and Subsidies

Tuition and Fees	Tuition and fees Low = \$0 - \$1,958	0=no 1=yes	Compared to students paying medium tuition
Tuition and Fees	Tuition and fees High = ≥\$4,054	0=no 1=yes	Compared to students paying medium tuition
Grants	Total grants and scholarships	Actual amount divided by 1,000	Compared to each \$1,000 increase in tuition current year
Loans	Total loans including plus loans current year	Actual amount divided by 1,000	Compared to each \$1,000 increase in tuition
Work-study	Total work-study award – current year	Actual amount divided by 1,000	Compared to each \$1,000 increase in tuition
Net Cost	Tuition minus grants and loans: Low = ≤\$1,697	0=no 1=yes	Compared to medium net cost
Net Cost	Tuition minus grants and loans: High = ≥\$3,206	0=no 1=yes	Compared to medium net cost

Debt Load

Debt Threshold	Low debt – less than \$3,000	0=no 1=yes	Compared to students with no debt
Debt Threshold	Medium debt – more than \$3,000 and less than \$7,000	0=no 1=yes	Compared to students with no debt
Debt Threshold	High debt – more than \$7,000	0=no 1=yes	Compared to students with no debt

Beginning Postsecondary Survey (BPS)

Climate – Friends	Went places with friends during first semester	0=no 1=yes	Compared to students who did not go places w/friends
Climate – Plans	Discussed plans with advisor about career	0=no 1=yes	Compared to students who did not meet with advisor
Climate – Talk	Talked with faculty outside of class	0=no 1=yes	Compared to students who did not speak with faculty
Goal – Career	Succeed in career	0=no 1=yes	Compared to students whose personal goal was not to succeed in a career
Satisfaction	Satisfied with intellectual growth	0=no 1=yes	Compared to students who were not satisfied with their intellectual growth

Table 2: ANOVA F-statistics of significant BPS factors

BPS Variables	F-Statistics
BPS Climate	
Go places with friends	68.492
Meet with advisor	67.089
Talk with faculty outside of class	67.899
BPS Goal	
Succeed in career	31.733
BPS Satisfaction	
Satisfied with intellectual growth	24.112

Table 3: Effect Sizes for 1996 Two-Year and Four-Year Sample

Background	Beta Coefficients	Delta P
African American	0.1480	0.0227
Latino*	-0.6340	-0.1205
Other*	-0.4950	-0.0910
Gender – Female*	-0.1680	-0.0283
Age – 23-29	-0.2400	0.0100
Age - Over 30	-0.2000	-0.0340
High Income*	-0.2420	-0.0416
Low Income	0.0130	0.0021
Independent**	0.6440	0.0842
Married	-0.0990	-0.0163
Disability	0.3820	0.0544
Learning Disability	0.6830	0.0881
Mother with No Higher Ed Attainment	0.0970	0.0151
Father with No Higher Ed Attainment**	0.0333	0.0482
Parent’s Choice	-0.1570	-0.0264
Counselor’s Choice	0.6940	0.0892
High Distance from Home*	-0.0399	-0.0716
Low Distance from Home*	0.2680	0.0396

Aspirations	Beta Coefficients	Delta P
College Degree*	1.2500	0.0539
Advanced Degree	-14.603	-0.9227
High School Experience	Beta Coefficients	Delta P
High School Degree*	-0.1061	-0.1176
GED/Certificate**	0.7880	0.0982
No Degree**	1.6170	0.1826
High GPA	0.0190	0.0917
Medium GPA**	-0.3540	-0.0628
Low GPA	-0.1340	-0.0224
High ACT*	-0.9060	-0.0944
Low ACT**	0.6510	0.0849
Taken Advance Placement Exam**	-1.8490	-0.2541
College Experience	Beta Coefficients	Delta P
Good Reputation**	-0.2500	0.0010
Non-Degree Seeking	-0.1010	-0.0167
Degree Seeking	-14.6030	-0.9227
On-Campus**	-1.7050	-0.2382
Off-Campus**	1.9020	0.1645
Work Full-time*	0.2580	0.0382
Work Part-time/No Work**	0.9250	0.0452
Required Remediation*	0.4230	0.0253
Friends Attendance	0.0190	0.0030
Price & Subsidy	Beta Coefficients	Delta P
High Tuition & Fees**	2.2580	-0.1750
Medium Tuition & Fees**	-2.0520	-0.3174
Low Tuition & Fees**	1.8750	0.1635
Current Grant	-0.0420	-0.0068
Current-year Loan	0.0230	0.0037
Current Work-Study	0.1690	0.0257
High Net Cost**	-0.6420	-0.1223
Medium Net Cost	-0.3160	-0.0258
Low Net Cost*	-0.3480	0.0616

Debt Variables	Beta Coefficients	Delta P
High Debt	-13.5020	-0.9227
Middle Debt	-13.4010	-0.9227
Low Debt	-13.4920	-0.9227
No Debt	0.1880	0.0285

BPS Variables	Beta Coefficients	Delta P
BPS Climate		
Goes Places with Friends*	-0.5750	-0.0438
Meet with Advisor About Plans**	0.1620	-0.0680
Talk with Faculty Outside of Class*	0.0600	-0.0424
BPS Goal		
Succeed in Career**	0.6150	0.0811
BPS Satisfaction		
Satisfied with Intellectual Growth	0.1940	-0.0151

Model Statistics

Sample Size	6351
Pseudo R2	.6490
Chi-Square	6319
Two-Year Choice Predicted	90.7%
Four-Year Choice Predicted	99.8%

** $p < .001$, * $p < .005$

What Matters in Student Loan Default: A Review of the Research Literature

by Jacob P. K. Gross, Osman Cekic, Don Hossler, and Nick Hillman

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Federal higher education policy has shifted over the past few decades from grants to loans as the primary means for providing access to postsecondary education for low- and moderate-income families. With this shift, policy makers have begun tracking student loan default rates as a key indicator of the efficacy of student loan programs. This effort requires a closer examination of how to define default and what default signifies: What is an acceptable rate of default? What factors contribute to default? Should default rates be used as indicators of institutional quality or loan program efficacy. These questions lead to further investigation of factors influencing default, such as whether default is a function of the characteristics of students or of the institutions they attend, and whether the types of loans borrowed influence the probabilities of default. To help answer these and related questions, this study reviewed the literature of research on student loan default conducted between 1978 and 2007, and identified 41 of the higher quality studies, the findings of which are summarized here.

As early as the mid-1970s, the emphasis in federal higher education policy began to shift from grants to loans as the means for providing financial assistance to low- and moderate-income families for postsecondary education. The shift continued with the fiscal policies of the Reagan administration and the 1980 reauthorization of the Higher Education Act (HEA), which introduced Parent Loans for Undergraduate Students (PLUS) loans and a shift in emphasis from grants to loans as the primary vehicle for providing access to postsecondary education for middle- and low-income families. With so significant a shift, it was inevitable that policy makers would begin to measure the efficacy of student loan programs by rates of default on student loans.

Student loan default, as well as institutional and federal loan practices, was a key discussion topic during the 1986 HEA reauthorization process, and three years later Congress passed the first federal legislation imposing penalties on institutions with high default rates. Then, in 1992, the HEA reauthorization broadened eligibility for subsidized loans, increased loan limits, and opened the unsubsidized loan program to all students. Concerns about student loan default grew, however. Discussions for the 1998 reauthorization noted a possible link between default rates and the quality of higher education institutions—a link suggested in high student loan default rates at some community colleges, historically Black colleges and universities, proprietary institutions, and urban institutions. The 1998 HEA reauthorization altered the cohort default rate calculation by extending—from 180 to 270 days—the period of payment delinquency after which the federal government would deem a borrower to be in default. This along with other changes in the student loan default policies in the 1998 reauthorization is widely regarded as having affected the financial aid practices of many nonprofit and for-profit postsecondary institutions.

Congress' 2008 reauthorization of the HEA revisited the question of loan default when Representatives Timothy Bishop (D-NY) and Raul Grijalva (D-AZ) introduced an amendment to extend the default calculation window to three years, prompting a federal study of default rates and focusing the

attention of policy makers on the formula for calculating cohort default rates. Using four years rather than the more common 12 to 24 months as the time frame, Choy and Li (2006) showed that default rates increased by as much as 6 percent among some groups of students and by as much as 60 percent among some types of institutions (Lederman, 2008). It is not surprising that federal policy makers looking at these numbers were asking again how much default is acceptable and what factors contribute to it. Their efforts to define default and to decide if default rates should be used as indicators of institutional quality or loan program efficacy raise complicating questions. Is default a function of the characteristics of students or of the institutions they attend? Do the types of loans influence the probabilities of default? Do life circumstances—like the types of jobs and income levels of students after they graduate—have an impact on default rates? To help policy makers and practitioners answer these and other questions surrounding the reauthorization process, we offer this review of the research literature on the predictors of student loan default.

Method

Our literature search for studies of student loan default targeted peer-reviewed journals in the fields of higher education as well as economics, sociology, and finance. We also used a variety of databases—such as EBSCO, Lexis-Nexis Academic, and JSTOR—to identify relevant reports or articles that may not have been published in journals. Using a template to systematically note key themes and important features of the reviewed studies—such as the study’s quality and scope and the database the researchers used—we identified, reviewed, and summarized 41 studies of student loan default conducted between 1978 and 2007, most of which were done after 1991.

While writing each summary, we used qualitative data analysis software (ATLAS.ti 5.2) to flag key findings and significant points with predetermined codes such as race/ethnicity or institutional type as well as emergent codes. These 45 codes were then grouped into thematic areas, forming the basis for the synthesis below. Although some research in this area has treated race, gender, and loan default separately, they are manifestly entangled. Using qualitative data analysis software enabled us to see the overlapping and intersecting themes across the literature on student loan default and to develop a systematic, comprehensive map of this complex terrain.

Empirical research employing multivariate statistical techniques that controlled for multiple complicating factors received the most attention in our review. While descriptive studies often make for simple and interesting trend analyses, they do not reveal underlying interactions between student characteristics and other factors—such as choice of major, type of institution, type of student loan, graduation status, postcollege employment and income, and student loan repayment status. Only the studies that simultaneously controlled for a range of variables could identify the predictors of student loan default. In addition, we focused more on studies that used national databases and that had larger samples.

Among the studies we reviewed, the chief limitation was that the research that was most robust in scope and methodology was conducted during the late 1980s and, especially, in the mid to late 1990s. Because few multivariate studies using national databases have been undertaken in the last seven years, much of the best research on this topic was conducted a decade or more ago—during a different historical context. It is possible that some patterns or trends have changed since the late 1990s. For example, Baum and O’Malley (2003a, 2003b) reported a fall in the debt levels of African American students between 1997 and

2002. Did these lower debt levels reduce the odds of defaulting among African American students during that time? The research is lacking to tell us whether concurrent policies, such as the 1998 HEA reauthorization, might have had an impact on student loan default rates.

Findings from the Literature: What Matters?

Research on student loan default has considered (a) the characteristics of students as they begin college (e.g., family income, race/ethnicity); (b) students' college experiences (e.g., type of institution, field of study, educational outcomes); (c) students' financial aid and the amount of debt they incur; and (d) students' employment and income after college as well as their overall debt (including loans and other forms of consumer debt). Vis-à-vis the evidence on these factors, we summarize the research on student loan default—with an eye on this broad question: *What matters?*

First, we present the findings related to factors on which the literature is inconclusive or points to no relationship regarding predictors of default. Then, we discuss in more detail the set of factors that have been found to influence student default rates.

Institutional Characteristics

Descriptive analysis suggests that students who attend less-than-two-year, proprietary, or community colleges have higher default rates than their peers at four-year or more selective institutions (Podgursky, Ehler, Monroe, Watson, & Wittstruck, 2002; Woo, 2002a, 2002b), even when the time horizon for considering default is extended to eight years (Kesterman, 2005). Once borrowing behaviors, student background characteristics, and institutional resources are considered, however, these differences largely disappear (Emmert, 1978; Flint, 1997; Knapp & Seaks, 1992; Volkwein & Cabrera, 1998; Volkwein, Szelest, Cabrera, & Napierski-Prancl, 1998; Wilms, Moore, & Bolus, 1987). Students who attend proprietary or less-than-four-year institutions tend to borrow more, to come from lower-income families, and to belong to a racial or ethnic minority group—characteristics associated with increased likelihood of default (Gladieux & Perna, 2005; Goodwin, 1991).

Moreover, greater institutional investment and instructional support is associated with decreased likelihood of default (Volkwein & Szelest, 1995). Generally, the wealthier the institution attended and the greater the student's access to social and economic capital the less likely the student is to default. In addition, some evidence suggests that students who attend less-than-four-year institutions may be more likely to carry more credit card debt compared to their peers at traditional institutions (Pinto & Mansfield, 2006). Finally, a descriptive analysis of default rates and institutional characteristics found that California students who attended publicly traded corporations were less likely to default than students attending other vocational schools (Woo, 2002a, 2002b).

Student Characteristics and Background

Race/ethnicity. Differences among racial and ethnic groups in the likelihood of default are perhaps the most studied topic in the loan default literature. Researchers have been remarkably consistent in their conclusions on this point—finding students of color more likely to default than their Caucasian peers (Christman, 2000; Harrast, 2004; Volkwein & Cabrera, 1998; Volkwein & Szelest, 1995; Woo, 2002a, 2002b) and African Americans at the greatest risk of defaulting (Greene, 1989; Herr & Burt, 2005; Knapp & Seaks, 1992; Podgursky et al., 2002; Steiner & Teszler, 2003; Wilms et al., 1987) even after controlling for postgraduation earnings (Boyd, 1997; Lochner & Monge-Naranjo, 2004). In

fact, race/ethnicity emerges as one of the strongest predictors of default (Harrast, 2004). For example, one study conducted at a traditional four-year public institution found that race/ethnicity explained about 20 percent of the variance in loan default, second only to degree completion (26%) (Herr & Burt, 2005). The relationship between race/ethnicity and likelihood of default holds regardless of the institutional type (Dynarski, 1994). Finally, in addition to being more likely to default on student loans, it appears African American students may be less likely to resume repayment after defaulting compared to their Caucasian and Asian American counterparts (Volkwein et al., 1998).

Despite much evidence suggesting students of color are more likely to default than their Caucasian peers, relatively little is known about the constellation of factors that likely contribute to this difference. To begin, students of color are more likely to borrow during school because of personal, family, employment, or institutional finances and can incur greater debt loads by the time they graduate (Harrast, 2004; Wilms et al., 1987). After graduation, moreover, students of color are more likely to be unemployed and less likely to be satisfied with their educational experiences (Volkwein et al., 1998), possibly leading to diminished capacity to repay loans—although as mentioned above the reasons for default extend beyond the ability to pay. For example, Boyd (1997) suggests that student loan default may be linked to discrimination in housing markets. Facing discrimination in the housing market regardless of one's earned degree or one's credit worthiness could reduce the incentive to protect credit scores by repaying loans.

Nearly all studies that considered the age of the student ... concluded that as age increases, so does the likelihood of loan default, even after controlling for other important factors such as income.

Age. Nearly all studies that considered the age of the student—either while enrolled in school or at the start of the loan repayment period—concluded that as age increases so does the likelihood of loan default, even after controlling for other important factors such as income (Christman, 2000; Flint, 1997; Harrast, 2004; Herr & Burt, 2005; Podgursky et al., 2002; Steiner & Teszler, 2005; Woo, 2002a, 2002b). Just one study—of a single traditional four-year public institution (Steiner & Teszler, 2003)—had contrasting results, finding younger students three times more likely to default than older students. A later study by the same researchers at the same institution, however, did not reproduce this finding.

Several explanations for this negative relationship between age and student loan repayment emerge from the research literature. Herr and Burt (2005) suggest that older students likely have greater financial obligations—such as families to support—that may compete with or prohibit loan repayment, while younger students have relatively fewer financial commitments. A second explanation pertains to the overall debt burden a student faces once repayments start. Harrast (2004) found that on average each year of age added \$312 to the student's cumulative debt load. Other research suggests the likelihood of default increases along with the total amount owed (Choy & Li, 2006). In sum, older students may be more likely to default because they owe more than their younger counterparts and because they may have relatively less in available resources to repay the loans.

Gender. The relationship between gender and loan default is much less clear in the literature. Several studies we reviewed found no significant difference in the likelihood of default between men and women (Harrast, 2004; Volkwein & Szelest, 1995; Wilms et al., 1987), even after considering women's comparatively lower average earnings and greater repayment problems (Schwartz & Finnie, 2002). More recent work suggests women take longer to repay loans (Choy & Li, 2006), and a number of studies found evidence that men are more likely than women to default on loans (Flint, 1997; Podgursky et al., 2002; Woo, 2002a, 2002b).

Socioeconomic Contexts

Student loan default occurs across the range of students' socioeconomic contexts. The family structure, the parents' education, the parents' marital status, and the family's eligibility for federal assistance such as Aid to Families with Dependent Children are all proxies for the social and economic capital students can "cash in" to attend college and then later to repay loans. We discuss next the effects of family structure, parental education, and family income on student loan default as reported in the studies we reviewed.

Family structure. Family structure affects in a number of ways the likelihood of defaulting on loans. First, the greater the number of dependents claimed by a student, the greater the likelihood of loan default (Dynarski, 1994; Volkwein & Szelest, 1995; Woo, 2002). Volkwein and Szelest (1995) found that the probability of default increased 4.5 percent per dependent child. As common sense suggests and research has corroborated, more children require a greater share of one's finite supply of resources, thereby decreasing the ability of a student with dependent children to repay loans (Herr & Burt, 2005). Indeed, having dependent children was found in one study to have a greater effect on the likelihood of loan default than the type of institution attended, parent's income, and even the student's annual earnings (Volkwein et al., 1998). Being a single parent was also associated with a greater risk of loan default (Volkwein et al., 1998). Being separated, divorced, or widowed was found to increase the probability of defaulting by more than 7 percent (Volkwein & Szelest, 1995). One final way family can affect loan default is by providing a safety net. Students who could count on support from their families, including parents, were less likely to default than those who had no family support (Volkwein et al., 1998; Woo, 2002a, 2002b).

Parental Education. Not surprisingly—given the positive relationship between education and socioeconomic status—students whose parents had higher levels of formal education were less likely to default than first-generation college students (Choy & Li, 2006; Volkwein et al., 1998; Volkwein & Szelest, 1995). This is true in relation to the mother's as well as the father's level of education (Steiner & Teszler, 2003, 2005).

Income. As we would expect, students from low-income families tend to incur more debt during school than their wealthier peers (Herr & Burt, 2005; Steiner & Teszler, 2005; Volkwein & Szelest, 1995). Low-income students also report feeling more burdened once their loan repayments begin, and some evidence suggests this reaction is intensifying (Baum & O'Malley, 2003b). Generally, the higher the family income the lower the likelihood the student will default (Knapp & Seaks, 1992; Wilms et al., 1987; Woo, 2002a, 2002b). Families with more money are able to provide a financial safety net unavailable to students from lower-income families, who are more likely to need such a resource given their greater levels of debt. This safety net also helps students to meet their loan obligations through fluctuations in personal income.

Most students who default do so because their personal income is inadequate to keep up with their payments (Flint, 1994; Woo 2002a, 2002b). As postgraduation or departure earnings increase, the likelihood of default decreases (Boyd, 1997; Choy & Li, 2006; Dynarski, 1994; Lochner & Monge-Naranjo, 2004; Volkwein et al., 1998; Woo, 2002a, 2002b). Unemployment, in contrast, increases the likelihood of default, making success in the job market critical to repaying student loans (California Postsecondary, 2006; Dynarski, 1994; Monteverde, 2000). Illustrating one of several possible explanations for the greater likelihood of default among racial/ethnic minorities, Lochner and

Monge-Naranjo (2004) point out that the post-college earnings of African Americans is lower than that of all other racial/ethnic groups. Institutional type may also be a factor, as defaulters who attended proprietary institutions cited unemployment as the cause for default (83%) in higher proportion than defaulters who attended other types of institutions (Dynarski, 1994).

Whatever the type of institution, the more a student borrows the greater the chance of default.

Debt burden. Research suggests that as debt burden increases so does the likelihood of default. In other words, although the average debt burden may differ by the type of institution attended, whatever the type of institution, the more a student borrows the greater the chance of default (Choy & Li, 2006; Dynarski, 1994; Lochner & Monge-Naranjo, 2004). Students who attended two-year and proprietary institutions in 2003-2004 owed over \$38,000 on average compared to \$36,000 among those who attended private four-year schools (California Postsecondary, 2006). A national study, similarly, found that students who attended proprietary schools spent a higher proportion of their monthly income (around 8%) on loan repayments compared to students who attended four-year schools (about 6%) (Dynarski, 1994).

Manageability of monthly payments is highly correlated with default (Dynarski, 1994). Students who owed more money reported more difficulties repaying loans, regardless of default status (Schwartz & Finnie, 2002). Currently, if monthly debt burden exceeds 8 percent of income, the debt is considered unmanageable. Choy and Li (2006) noted that 11 percent of borrowers reported unmanageable debt levels by 2003, with more than 20 percent of these students eventually defaulting. One exception emerged regarding high debt and likelihood of default: Students who incurred high levels of debt by attending graduate school were actually less likely on average to default (Volkwein et al., 1998; Woo, 2002a, 2002b).

College Experiences

Academic enrollment and intensity. Markers of students' academic experiences in postsecondary education—credits attempted, credits completed, credit hours failed, grades, transfer patterns, enrollment patterns, and time to degree/certificate—emerge as the strongest predictors of loan default. Students who enroll continuously, enroll in more rather than fewer credit hours, complete their attempted courses (i.e., do not receive incompletes), and graduate within eight semesters are less prone to default on average (Christman, 2000; Harrast, 2004; Steiner & Teszler, 2005). Evidence suggests that the odds of defaulting increase the longer it takes a student to get through school, although enrolling continuously may have a stronger positive relationship with not defaulting than taking longer than eight semesters to graduate (Podgursky et al., 2002).

Findings regarding academic mobility—reflected in transfer behaviors—and the likelihood of default in the studies we reviewed were mixed. Woo (2002a, 2002b) found that students who attended more than one institution were less likely to default than students who remained enrolled at the same institution, although the study included graduate students, who are generally less likely to default and often attend multiple institutions. Volkwein and colleagues (1998) found a positive relationship between receiving transfer credits and not defaulting, although in a single institutional study Herr and Burt (2005) found that students who transferred credits were more likely to default.

The relationship between academic trajectories and loan default is complicated, although at least two clear linkages emerge. First, students who take longer to

get through school often incur more debt. Harrast (2004) found that average debt load increased \$418 per each semester a student is enrolled beyond the first year and that the median debt load of a student who takes five or more years to graduate is 58 percent higher than that of a student who graduates in four years or less. Second, as discussed in more detail in the next section, common markers of lower levels of academic enrollment and intensity—such as noncontinuous enrollment and low academic performance—are all associated with a decreased likelihood of earning a degree, which is also a strong predictor of default.

The majority of the research ... suggested that completing a postsecondary program is the strongest single predictor of not defaulting regardless of institution type.

Educational attainment. Attainment at both the secondary and tertiary levels of education is perhaps the strongest predictor of loan default. Students who dropped out of high school or earned a GED were more likely to default than students who had earned a regular diploma (Dynarski, 1994; Wilms et al., 1987). The majority of the research we reviewed suggested that completing a postsecondary program is the strongest single predictor of not defaulting regardless of institution type (California Postsecondary, 2006; Dynarski, 1994; Greene, 1989; Knapp & Seaks, 1992; Volkwein et al., 1998; Woo, 2002). Steiner and Teszler (2005) estimated that students who graduated had a 2 percent chance of defaulting compared to 14 percent for those who did not graduate. Interestingly, progress toward degree also reduced likelihood of default. At the start of repayment students who had earned sufficient credits to be classified as seniors were less likely to default than those who progressed to junior status, and so on (Herr & Burt, 2005). The relationship between attainment and default may reflect student sorting, with students who are more prone to default also being more likely to depart postsecondary education prior to finishing a degree (Podgursky et al., 2002).

Academic preparation. Given the relationship between degree completion and likelihood of default, it is not surprising that academic preparation—as measured by high school rank, high school GPA, and standardized test scores—is also strongly related to default. Generally, students who are better prepared academically according to these traditional measures are less likely to default on their loans. As high school rank, standardized test scores, and high school GPA increased in the studies we reviewed, the likelihood of default generally decreased (Christman, 2000; Podgursky et al., 2002; Steiner & Teszler, 2003; Woo, 2002), although one study found a “U-shaped” relationship between performance on standardized tests and default (Lochner & Monge-Naranjo, 2004). Low-scoring and high-scoring students were more likely to default than students with mid-range scores. Finally, Herr and Burt (2005) found that systematic differences by high school emerged in relation to likelihood of default, although the authors do not offer a detailed explanation of these differences.

Program of study. What students study in school appears to affect likelihood of default in at least two ways, according to the studies we reviewed—in amount of debt incurred and in postgraduation earnings. Harrast (2004) found that studying special education, computer engineering, sociology, art history, or risk management and insurance was associated with higher levels of debt relative to other fields. This study focused on one institution, however, and the author was unsure why major affected subsequent debt burden. More evidence exists to suggest that postgraduation earnings related to field of study affect personal income and, therefore, one’s ability to repay loans (Flint, 1997; Herr & Burt, 2005; Steiner & Teszler, 2005; Volkwein & Szelest, 1995). Lochner and Monge-Naranjo (2004) found the effects of major choice disappeared after controlling for total debt and postcollege earnings. In contrast, Schwartz and Finnie (2002)

found that Canadian graduates in fields with lower expected future earnings had a higher probability of experiencing repayment problems, even after controlling for total debt and amount earned.

Financial Aid and Education Debt

The evidence regarding the relationship between financial aid and default is mixed at best. The amount of education debt faced by students has generally been on the rise since at least 1997, with the greatest increases among low-income students—although debt among African American students seems to have actually decreased slightly between 1997 and 2002 (Baum & O'Malley, 2003a, 2003b). This suggests that, given the positive relationship between debt burden and default, a decrease in grants and scholarships may promote an increase in likelihood of default. Indeed, Greene (1989) found that grants and scholarships reduced the probability of default, at least at one traditional four-year institution. Another study found, however, that the amount of aid, the types and number of loans, and loan consolidation had no effect on default at another four-year institution (Steiner & Teszler, 2003).

Attitudes and Awareness Regarding Education Debt

Relatively few studies have explored the relationship between students' attitudes about debt and the likelihood of default. One study concluded from interviews that student attitudes—including ignorance about the borrowing process—were related to default (Christman, 2000). A more robust analysis of a national sample of students found, however, that not knowing a loan had to be repaid did not predict likelihood of loan default (Volkwein et al., 1998). While two-thirds of students in one national survey said loans were very important to their being able to attend postsecondary education, differences in attitudes toward debt by race/ethnicity and income emerged (Baum & O'Malley, 2003a). African American borrowers participating in that survey reported feeling more burdened by their debt and less satisfied that the benefits of borrowing outweighed the costs. Low-income students who had received Pell grants similarly reported feeling more burdened by debt, and this perception appears to be increasing. Generally, as the ratio of monthly income to debt payment increased so too did the negative perception of debt (Baum & O'Malley, 2003b).

A study of the relationship between education and other forms of debt found that students with high levels of loan debt were also likely to carry significant credit card debt (Pinto & Mansfield, 2006). Moreover, students were more likely to prioritize the repayment of credit card debt over that of student loan debt.

Finally, several researchers have explored the effects of loan counseling or consumer education programs and have found they appear to be related to lower rates of default (Podgursky et al., 2002; Seifert & Worden, 2004; Steiner & Teszler, 2005; Wilms et al., 1987). Whether this is a function of self-selection or program efficacy is unclear, however, as students who participate in such programs may be less likely to default anyway. However, students who complete a postsecondary credential, as we discuss above, are less likely to default regardless of whether they participate in a loan counseling program.

Conclusion

In sum, the empirical evidence suggests that default rates are not good vehicles for assessing the quality of institutions or of various types of loans. Nor is it a simple matter to identify which students are likely to default so that they could simply be declared ineligible for student loans. The causes of loan default are rooted more deeply in the ever-present tensions around federal financial aid policy. Since 1965 the federal government has made access to postsecondary education for all students, regardless of income, a cornerstone of federal higher education policy. Over the years, because of fiscal constraints, Congress has moved from grants to loans as the primary vehicle for ensuring such access. It is axiomatic that there is greater risk of default in providing loans to low- and moderate-income students—who often come from families with weak credit histories and who may be at greater risk of not graduating or of ending up in jobs with lower incomes. Absent greater federal emphasis on grants, it is hard to imagine a scenario in which access to postsecondary education via loans will not also result in higher default rates among some student populations than policy makers would like. One alternative is to stop admitting or providing loans to students who are at greater risk of defaulting. This, of course, would turn a blind eye to the tens of thousands of students who triumph over their circumstances, repay their loans, and go on to lead responsible, productive lives—and would undercut the very purposes of the student loan program.

Studying the effects of financial aid policy has always meant aiming at a moving target. As federal, state, and institutional policies have changed around both pricing and financial aid, the impact of financial assistance, including student loans, has also changed. Given this shifting context, we are struck by the relative dearth of recent research on student loan default using large national data sets and rigorous statistical methods. While other areas of financial aid policy such as student debt or the impact of financial aid on persistence have received substantial research attention, a series of studies on student loan default has not been undertaken for more than a decade. The time has come to fill the gap.

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Defining Merit: The Impact of Award Structure on the Distribution of Merit Aid

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The Kentucky Education Excellence Scholarship (KEES) is a merit-based scholarship program intended to increase college access, long-term academic commitment, and retention of top students within the state. KEES uses a heavily graduated award structure and both high school grade point average and standardized test scores to establish award amounts. Using school-level data, this study applied means tests, correlation, and multivariate analysis to examine the relationship between the demographic composition of high schools and the amount and number of KEES awards received. KEES was found to be regressive, and that regressivity is compounded by its graduated structure. Students from higher socioeconomic status schools, from schools with more Caucasian students, or from schools with more females received a higher proportion of KEES awards, in larger amounts, than those from other schools. The source of KEES funding was also found to be regressive: the more successful the program, the greater the strain on its static lottery revenue funding. Because awards are not indexed to inflation, their impact on college affordability diminishes as education costs rise. Recommended steps for addressing regressivity in the KEES program, including clearly defining the program's primary goal and introducing a need-based component, are discussed.

In April 1998, the Commonwealth of Kentucky joined a growing list of states that have a lottery-funded, broad-based merit scholarship program. Senate Bill 21 enacted by the Kentucky General Assembly established the Kentucky Educational Excellence Scholarship (KEES). The legislature designated a portion of state lottery revenues to fund this merit-based scholarship. Explaining the general goals of the program, the bill states:

“The general assembly of the Commonwealth of Kentucky hereby declares that the best interest of the Commonwealth mandates that financial assistance be provided to ensure access for Kentucky citizens to public and private postsecondary education at the postsecondary educational institutions of the Commonwealth. It is the intent and purpose of the General Assembly that the enactment of Sections 1 to 6 of this Act shall be constructed as a long term financial commitment to postsecondary education...”

In addition to the explicit goals of ensuring access and providing a symbolic, long-term commitment to postsecondary education, the sponsors of KEES argue that the scholarships also serve as a mechanism for keeping talented students in the state (KLTPRC, 2003; Hopkins, 2004).

Our study uses school-level data to evaluate how the award structure of KEES impacts the program's ability to satisfy the program's goals of increased access, long-term commitment, and retention of top students. It takes into account how a changing policy environment defined by static lottery revenues coupled with the growing number of KEES-eligible students affects the scholarship's ability to meet these goals. By examining the relationship between the demographic composition of high schools—particularly in terms of socioeconomic status, race, and gender—and the amount and number of KEES awards received, we analyze how a heavily graduated award structure impacts the distribution of the program funds.

Merit Scholarships

The Georgia HOPE Scholarship, established in 1993, has served as a model for many broad-based merit scholarship programs across the country. In addition to being the first, the Georgia HOPE Scholarship is also the most studied (e.g., Dynarski, 2000; Cornwell & Mustard, 2001; Rubenstein & Scafidi, 2002). Broad-based merit scholarship programs have also been the focus of two recent studies from the Civil Rights Project at Harvard University. In addition to exploring the effects of the HOPE Scholarship, researchers also examined the consequences of broad-based merit scholarships in other states including Florida, Michigan, New Mexico, Alaska, and Kentucky. The first report, *Who Should We Help? The Negative Consequences of Merit Scholarships*, investigated theories behind the use of these scholarships as well as how the different definitions of merit affect the distribution of awards (Heller & Marin, 2002). The researchers focused on the effects of merit structures on access to college for racial minorities and students from low-income families. In addition, the study researched how the presence of merit scholarships shaped tuition rates and financial aid packages from colleges within states implementing such programs.

The general findings from the study were as follows: 1) Definitions of merit and the structures of many existing merit scholarships overlook students with the greatest financial need. This exacerbates existing disparities for minority and low-income students. 2) Merit scholarships do not greatly expand access to college; instead they tend to benefit those students who would attend college anyway. In particular, scholarships seem to shape the school choice by students who qualify for them; 3) Merit scholarships seem to influence tuition and financial aid decisions at some institutions, which has the potential to increase the cost of going to college for students who do not qualify for the scholarships (Heller & Marin, 2002).

The follow up study by the Civil Rights Project, *State Merit Scholarship Programs and Racial Inequality*, looked in greater detail at the effects of scholarships on low-income and minority groups (Heller & Marin, 2004). This report confirmed the earlier studies' conclusion that although the effects of merit scholarships varied by state and structure, they tended to contribute to existing inequalities in access and awards. The study also included one of the few quantitative analyses of KEES. In a comparative analysis of five states, Farrell (2004) found a substantive gap between the size of KEES awards earned by Caucasian and African-American high school students.

While merit scholarships have vocal critics, some of the programs earn praise from scholars. For example, Ackerman, Young, & Young (2005) argue that Nevada's Millennium Scholarship Program has been successful in achieving many of its goals. They find evidence that the Nevada Program improves access to higher education and encourages students to attend in-state institutions. The program also seems to promote persistence among award recipients. Ackerman et al. note the importance of having the scholarship program tied to a stable source of revenue.

The Structure of KEES

When compared with other merit programs, KEES has several distinctive characteristics. Noteworthy differences include a substantially graduated award schedule and the inclusion of two measures of merit. KEES awards are calculated using two measurements: high school GPA determines a base award, and ACT test score determines a supplemental amount. The annual base award is earned

for each of the four years of high school and ranges from \$125 for a high school grade point average (GPA) of 2.50 to \$500 for a GPA of 4.00. Students with higher ACT scores receive an additional supplemental amount. Students who score a 15 on the ACT receive \$36 a year while those scoring 28 or above receive \$500 a year. Students have up to five years after completing high school to use up to eight semesters in KEES awards. The maximum they can receive in a year is \$2,500 with a total of \$10,000 over the eight semesters. Students must maintain at least a minimum GPA to continue receiving the maximum awards. After the first award period the minimum GPA is 2.50; after the second award period, the minimum GPA is 3.00 for the maximum award. Following the second and third award years, students can retain half of the scholarship amount with a GPA of 2.50 through 2.99.

The graduated structure of KEES, in both the calculation of the award amounts and the retention criteria, has implications for which students benefit from the program and how well KEES meets its policy goals.

Variation of KEES Awards Across Schools

To explore how KEES awards are distributed across schools, we employ four aggregate school-level variables: the percentage of high school students who earned KEES awards during the 2002-03 school year; the average size of base awards earned by students; the average amount of KEES base awards per student attending the school; and the average size of the supplemental awards earned by students.

This study explores the effect of school variations across several demographic characteristics. Our primary emphasis is on the relationship between economic factors and KEES awards, but we also look at the racial and gender composition of schools. To test these relationships we employ means tests, correlation, and multivariate analysis.

Our analysis includes 232 public high schools that are categorized as a “regular school” by the National Center of Education Statistics (NCES) Common Core of Data. Before comparing regular public schools, however, it is instructive to look at variations across types of schools. Figure 1 illustrates the average base and supplemental award by type of high school including “regular” public high schools, public schools that have been classified as “alternative” by the NCES Common Core of Data, and private high schools. Figure 1 indicates that students who attend private high schools receive disproportionately larger awards than students who attend regular and alternative public schools. The average base award earned at a private school is \$351, which is \$28 more than the average of \$323 earned at regular public schools. Over a four-year period, this would translate to a difference of \$112 in mean awards earned. The difference between the average supplemental award for students attending a private high school versus a regular public high school reveals the same pattern: the average \$310 award amount for private schools is \$60 larger than the average award for regular public high schools. As would be expected, significant gaps exist between the size of awards between regular and alternative public schools as well. It is worth noting that the schools with the nine largest average base award means are private.¹

1. Because the data are from the 2002-03 school year, comparisons between private and public schools, which require measures of student enrollment size, are limited. The demographic data for public schools come from the Common Core of Data for the 2002-03 school year. Data for the Private School Universe Survey are gathered every other year so there is not updated private school data for the 2002-03 school year.

Figure 1: Average KEES Award Earned (by Type of School)

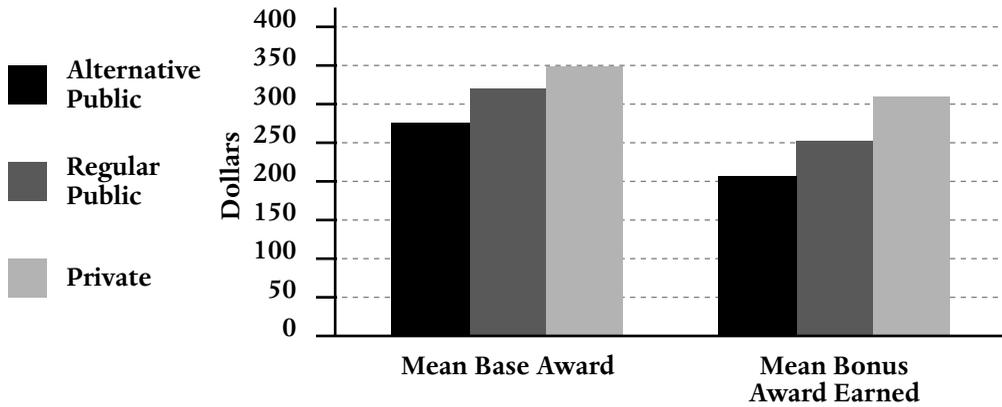


Table 1 presents descriptive statistics for the four KEES award variables as well as three demographic variables for the 232 regular public schools. The most striking results are the differences in standard deviation between the average base awards and the average supplemental awards. The base average stays fairly stable with a standard deviation of only \$20, while the supplemental average exhibits a much greater range with a standard deviation of \$41. The range between minimum and maximum awards is also a much wider for the average supplemental award measure than for the average base award variable. Since these two awards base their values on different criteria (GPA for base and ACT for supplemental), the results suggest that the way merit is defined and measured has a significant impact on the size of merit awards. Clearly, there is much less variance across schools for the GPA-based measures than for ACT-based measures.

Table 1: Descriptive Statistics for KEES Award Measures (Regular Public Schools)

Measure	Mean	Standard Deviation	Minimum	Maximum
Percent of students earning award	58%	9%	28%	90%
Average base award	\$322	\$20	\$246	\$374
Average award per student	\$190	\$37	\$69	\$318
Average bonus award	\$234	\$41	\$107	\$370
Percent of female students	49%	3%	33%	65%
Percent of Caucasian students	90%	13%	16%	100%
Percent of students receiving free or reduced-price lunches	61%	24%	3%	99%

Table 2 is a correlation matrix of the four measures of KEES awards. As might be expected, the variables correlate with each other at a significant level. Interestingly, there is a weaker correlation between the average supplemental award and the three base award variables. Although the supplemental and base awards all work on the assumption that they measure the merit of the award recipient, these measures, which are related, appear somewhat independent of each other. This suggests that the measure used to define merit significantly influences the distribution of awards.

Table 2: Correlation Matrix for KEES Award Measures

Measure	Average Base	Average Award	Average Bonus
Percent of students earning award	.67***	.97***	.43***
Average base award		.82***	.31***
Average award per student			.42***

*** statistically significant at .001

Evidence from individual level studies finds students from higher socioeconomic status levels receive a disproportionate amount of merit scholarships. Our primary focus is on the relationship between schools rather than within schools. To explore how the economic backgrounds of schools affect the distribution of awards, we first compare means between the wealthiest and poorest schools. The free or reduced-price lunch is commonly used to denote school population socioeconomic status. Using an independent *t*-test, we compared 20 schools with the largest number of students receiving free or reduced-price lunch with 20 schools with having the fewest number of students receiving free or reduced-price lunch (see Table 3). In terms of base awards, the gaps between the wealthy and poor schools result primarily from the difference in the number of students who earned the awards versus those who did not. The difference between the two groups for average base awards was just over \$20, but the schools with fewer subsidized lunches had 15% more students earning awards. The gap for the supplemental award was more than four times the base award difference. The means tests attained statistical significance at $p=.01$ (two-tail test) for all four comparisons. These findings suggest that schools with a higher share of students receiving free or reduced-price lunches earn fewer awards *and* receive smaller award amounts. The simple bivariate comparison of means provides evidence that that the graduated awards structure increases the regressivity of KEES distributions.

Table 3: *t*-test for Independent Means

Measure	20 Schools with Lowest Percentage Subsidized Lunches	20 Schools with Highest Percentage Subsidized Lunches	Statistical Significance
Percent of students earning award	67%	52%	0.000
Average base award	\$332	\$312	0.003
Average award per students	\$223	\$164	0.000
Average bonus award	\$284	\$190	0.000

An analysis of the correlations between the percentage of students receiving free lunches and distribution of KEES awards (presented in Table 4) reinforces the findings from Table 3. The correlations between the number of students receiving free or reduced lunch and the three base awards measures are moderate but attain significance at the .001 level. The correlation (-0.64) is much stronger between the size of the supplemental award and the percentage of students receiving subsidized lunches. The bivariate analysis indicates that granting awards

based on GPA mitigates some of the regressivity across schools when compared with the awards based on standardized test results, and it is likely that variations in grading standards could be a factor. This is consistent with evidence from the Georgia HOPE Scholarship research findings that some localities do better than expected in number of scholarships obtained (Campbell & Finney, 2005).

Table 4: Correlations for Subsidized Lunches and Racial Composition

Measure	Percent of Students Receiving Free or Reduced-Price Lunch	Percent of Caucasian Students
Percent of students earning award	-.33***	.29***
Average base award	-.20***	.30***
Average award per student	-.31***	.29***
Average bonus award	-.64***	----

*** statistically significant at .001

Table 4 presents the correlations between the earning of KEES awards and the percentage of the student populations that are Caucasian. There is a modest, statistically significant relationship between the percentage of students that are Caucasian and the three base award measures. Conversely, no relationship emerges between supplemental awards and the racial makeup of the school.

The relationship between receiving free or reduced-price lunch and earning a KEES award was also tested using a multivariate model. OLS Regression was used to measure the effects of demographic composition on KEES awards. The three independent variables of primary interest are percentage of students who receive free or reduced-price lunch, percentage of students who are Caucasian, and percentage of students who are female. A control for school locale as categorized by National Center for Education Statistics (NCES) was also included when generating results, which are presented in Table 5.

Table 5: Summary of OLS Regression Results

Measure	Percent of Students Earning KEES Awards	Average Base Award	Average Award Per Student	Average Bonus Award
Percent of students receiving free or reduced-price lunch	-0.16***	-0.27***	-0.66***	-1.19***
Percent of Caucasian students	0.16***	0.33**	0.66**	-0.00
Percent of female students	0.32*	0.52	1.13	-0.82
N	232	232	232	232
Adj. R	0.26	0.19	0.26	0.49

*** Statistically significant at .001 (one-tail test)

** Statistically significant at .01 (one-tail test)

* Statistically significant at .05 (one-tail test)

The subsidized lunch variable attains statistical significance at the .001 level in models using each of the four dependent variables (three base award variables and the average supplemental award).² The relationship between receiving a subsidized lunch and earning a KEES award by school is substantively larger for the average bonus awards variable than it is for the average base award. A school with 25 percent of its students receiving free or reduced-price lunch would have average supplemental awards of about \$59 greater than a school with 75 percent of its students receiving subsidized lunches. The gap would average \$14 for the average base award, while the difference in the number of students earning awards would be about 8 percent between the schools.

Racial makeup has an effect on the earning of base awards by school but does not have a statistically significant effect on the supplemental award average. As expected based on the correlation results presented in Table 4, schools with a higher percentage of minority students have lower average base awards, fewer awards earned, and a lower total of base awards per student. Statistical significance is attained at the .01 level (one-tail test) for each of the three base award models. For example, a school with a student body that is 75 percent Caucasian will, on average, have 8 percent more of its students earning KEES awards than a school that is 25 percent Caucasian. The difference in the average size of base award is about \$17.

Gender composition is a statistically significant factor (at the .05 level) only in the percentage of students who earn KEES awards. A 3 percent increase in the percentage of female students translates into about a one percent increase in the percentage of students who earn KEES awards per school.

Aggregate school level results provide support that, like other merit-based scholarships, the KEES program is regressive in its award structure and that the graduated award structure compounds the regressivity across Kentucky's public schools. Schools with fewer students receiving free or reduced-price lunch have a higher percentage of students receiving awards *and* have higher average awards than schools with more students receiving subsidized lunches. This is consistent with individual data gathered by the Kentucky Higher Education Assistance Authority and the Kentucky Legislative Research Commission (LRC, 2003). Racial composition of schools also effects the distribution of base awards. Schools with a higher percentage of minority students receive fewer and smaller awards.

Diminishing Returns

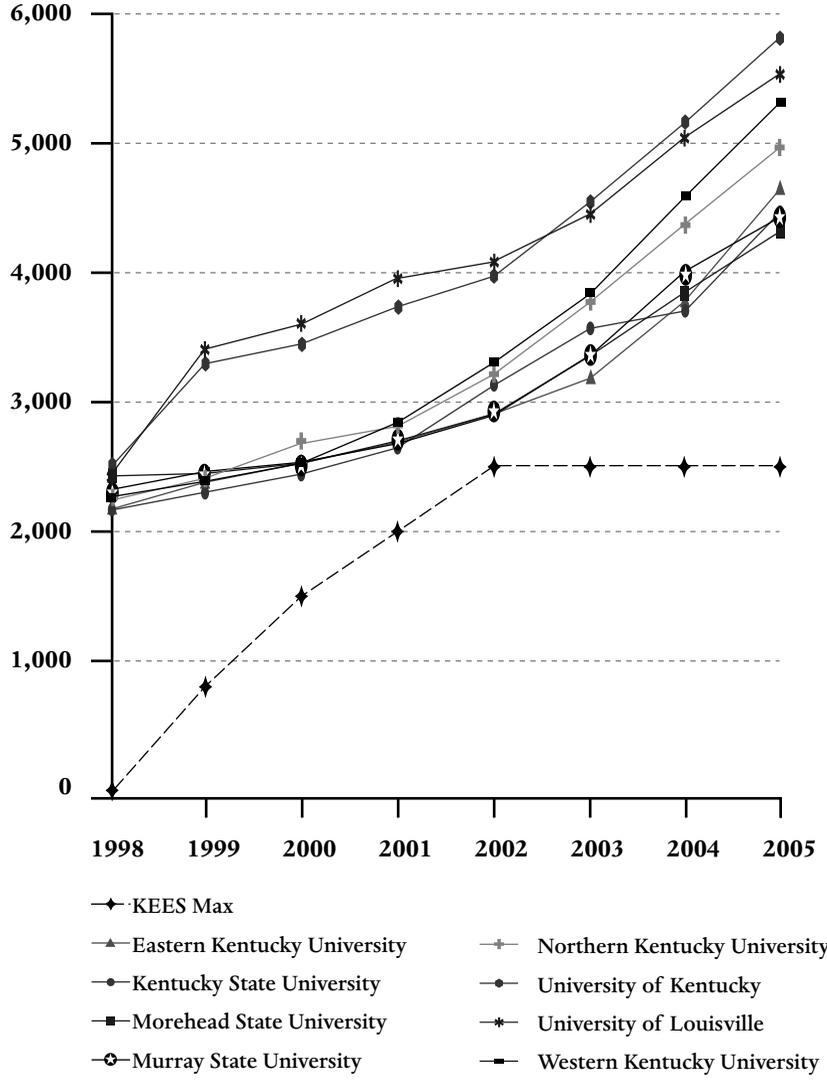
Even if KEES has had some success in attaining its goals so far, the impact of KEES is declining and will continue to decline over time due to two factors. First, the program is fully funded by the Kentucky Lottery. For the fiscal year that ended in June 2005, the Kentucky Lottery saw a decline in revenues and the projected amount of dividend transfers from the lottery to the state fell about \$10 million short of expectations. Part of the decline can be traced to the creation of the Tennessee Lottery.

Second, and more significantly, KEES awards are not indexed for inflation. Many other programs, including the Georgia HOPE Scholarship, provide full or a percentage of tuition for qualified recipients, rather than a fixed dollar amount. Thus, the HOPE Scholarship and similar programs are automatically indexed for increases in college tuition.

2. Controls for the different locales as defined by the U.S. Census were included in the OLS Regression models. Since no particularly strong or interesting patterns emerged, they are not presented here.

Conversely, the maximum annual disbursement for Kentucky students is \$2,500. The first graduation class eligible for the full award graduated in 2002. The maximum annual disbursement would have covered from between 63 percent (University of Kentucky) to 85 percent (Eastern Kentucky University and Morehead State University) of the cost of college at 4-year public universities during academic year 2002-03. The percentage of tuition and fees covered by the maximum annual award has declined to a range of 37 percent (University of Kentucky) to 51 percent (Morehead State University). The average KEES disbursement for the past three graduation classes has been about \$1,326 for the first year of college. This would cover 20 to 27 percent of tuition and fees at 4-year public schools. The decline in purchasing power will continue, particularly as tuition increases outpace the rate of inflation. Figure 2 provides a visual presentation of the maximum KEES award for each graduating cohort relative to changes in tuition at Kentucky's public universities.

Figure 2: Maximum KEES Awards Relative to Tuition at 4-Year Public Schools



Even if one ignored issues relating to the declining purchasing power of KEES, a tremendous irony exists that is shared with several lottery-funded merit scholarships: the more successful the program is at attaining its goals, the greater the strains placed on funding sources. In the specific case of Kentucky, the Legislative Research Commission has projected a shortfall in funds available for KEES (LRC, 2003). Obviously, declines in revenue or increased utilization would exacerbate the shortfall. Concerns over a projected shortfall have already led some Kentucky legislators to consider lowering award size or raising the GPA requirements necessary to earn an award. In any circumstance, there is no indication that there are resources available to increase award size to keep pace with tuition or even inflation.

Evidence of the diminishing ability for KEES to achieve its long-term goals already exists. For example, the utilization rate has declined by 9 percent since 1999. There is also evidence that the current awards structure is somewhat limited in its ability to keep the most talented students in the state. Over 15 percent of Kentucky schools have higher utilization rates for students with GPAs between 3.50-3.99 than for students with a 4.00 GPA.

Findings and Implications

The aggregate data presented here support the hypothesis that the KEES program is regressive in its distribution of benefits. The percentage of students who receive an award as well as the size of the average award earned at schools where a higher percentage of students receive free or reduced-price lunches is lower than for schools where fewer students receive subsidized lunches. Our finding of regressivity is consistent with the majority of studies that investigate the distributive effects of broad-based merit scholarship programs.

Our findings also suggest that not only is the distribution of KEES awards regressive, but that the source funding for the program is as well. Like many other broad-based scholarship programs, KEES is funded by a statewide lottery. The general consensus of research on lotteries as governmental funding mechanisms is that most lotteries are regressive (Clotfelter, 1979; Clotfelter & Cook 1991; Hansen et al., 2000). The regressivity stems from who bears the costs and who receives the benefits of the program. The literature consistently concludes that lottery games are played disproportionately by groups from middle and lower socioeconomic segments of society while the benefits of the programs go to higher level socioeconomic groups.

Although lottery-funded merit scholarships generally have proven to be political winners (Nelson & Mason, 2003), their regressive nature is a major source of criticism. Many studies look broadly at the distribution of lottery proceeds but only a few address how the structure of the distributions affects the regressivity. Our findings show that the definition of merit and the structure of the award significantly affect the distribution of benefits. Awards based on ACT scores are more regressive than awards based on high school GPA. More importantly, a graduated awards structure like the one used by KEES compounds the regressivity of the awards. In addition, the findings suggest that the distribution of KEES award is not neutral along racial and gender dimensions. A greater number of students earn awards at schools with a higher percentage of Caucasian students, and their average awards tend to be larger. Schools with a higher percentage of female students also have a greater percentage of students earning KEES awards.

The relationship between the distribution of KEES's scholarships and the program's ability to address policy goals is consistent with effects found in studies

3. Correlation analysis also reinforces the patterns found in the results for difference of means tests.

of other lottery-funded education programs (Miller & Pierce, 1997; Eaton 2000, Rubenstein & Scafidi, 2002; French & Stanley, 2003). While the regressive nature of KEES is an issue, it is simplistic to critique broad-based merit aid solely on the regressive distribution of benefits. From a policy analysis perspective it is more important to determine to what extent KEES is able to meet short- and long-term goals. To the extent that KEES has been successful in attaining its stated objectives, the program's ability to achieve its goals will decline over time. Since the passage of the KEES legislation, the cost of tuition has more than doubled at Kentucky's public universities. Utilization rates have been declining since the beginning of the program, providing evidence that the program is becoming less effective in serving as an incentive for attending college in Kentucky.

In part due to revisions in qualification standards and stabilized funding, Ackerman et al (2005) argue that Nevada provides a model of a merit aid program that works reasonably well. KEES, however, is an example of a program that is not structured to maximize effectiveness. Without changes, KEES will not fulfill its goals of increased access, long-term commitment to postsecondary education, and the retention of top students. In terms of access, KEES has provided funding for a significant number of students in Kentucky since its inception. One major problem is that with increasing numbers of eligible students and static lottery sales, KEES' ability to offset the cost of college for students will diminish over time.⁴ As presently structured, KEES will continue to be and will become even more limited in its ability to improve access to college for those who can't afford it. Likewise, the financial incentives for remaining in-state will decline relative to tuition rates. In the end, perhaps the biggest obstacle facing KEES is trying to meet two divergent goals: Creating an effective scholarship program to keep the best and brightest in state should look very different from a program designed to increase access to higher education. By trying to achieve both goals with the same program, KEES is rendered ineffective at achieving either one.

From a more positive perspective, there are some steps that can be taken to improve the effectiveness of KEES. The first step is to more clearly define the primary goal for KEES. Is the primary goal to promote access to higher education or is it to encourage the best and brightest students to attend college within Kentucky? If the goal is to keep the best and brightest home for college, it is necessary to increase the size of awards but significantly reduce the number of students who are eligible for them. Restricting the number of students who receive the awards is politically risky considering that broad-based merit aid programs have emerged as state-level entitlements in many states. A more direct alternative is to create incentives for residing in the state after college, rather college choice.

If the primary goal is to ensure access, the regressive nature of KEES is a likely concern. An easy way to mitigate part of the regressiveness is to eliminate the graduated award structure. Students at wealthier schools would still be more likely to receive awards but the disparity between average award amounts would disappear. A more innovative alternative would be to maintain a merit-based component, but add a need-based multiplier. Theoretically this would address some of the criticism that broad-based merit programs are not very efficient mechanisms to increase access to college because large amounts of the aid go to students who would be attending college anyway. Incorporating a need-based multiplier would allow the program to target students more efficiently and should lead to a more efficient use of resources. The students receiving the largest awards would be those who have the greatest need and have achieved academic success during high school.

4. While utilization rates have dropped since the implementation of KEES, almost 3,000 more students earned awards in 2007 than in 2002. This led to an increase of over 1,500 students that utilized their awards during the first year following graduation at the end of the 5-year period than at the beginning.

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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.

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