Journal of Student Financial Aid

Volume 30 | Issue 2 Article 2

7-1-2000

Persistence by Undergraduates in an Urban Public University: Understanding the Effects of Financial Aid

Edward P. St. John

Shouping Hu

Tina Tuttle

Persistence by Undergraduates in an Urban Public University: Understanding the Effects of Financial Aid

By Edward P. St. John, Shouping Hu, and Tina Tuttle

Edward P. St. John is Professor of Educational Leadership and Policy Studies at Indiana University; Shouping Hu is Assistant Professor of Educational Administration at Seton Hall University; and Tina Tuttle is Director of the Office of Scholarship and Assistant Director of Enrollment Services at Indiana University-Purdue University at Indianapolis.

The decline in federal grants over the past two decades could be problematic for urban higher education because of the concentration of poverty in urban settings. This case study examines the effects of student aid on within-year persistence at an urban public university in the 1990s. The analyses indicate that aid packages remained adequate at this urban university. It appears that state and institutional grants play an increasingly important role in maintaining affordability in this new context of higher tuition and higher loans.

The past two decades witnessed some fundamental changes in public higher education finance in the United States (McPherson & Schapiro, 1991, 1998; Orfield, 1992; St. John, 1994; Slaughter & Leslie, 1997). Tuition charges increased substantially faster than inflation, while federal student financial aid programs shifted from primarily grants to primarily loans (Callan & Finney, 1997; St. John, 1994). All these changes came together in an age in which "high tuition, high aid" became the primary policy rhetoric in postsecondary finance (Hearn & Longanecker, 1985). Unfortunately, the "high tuition, high aid" rhetoric turned out to be "high tuition, high loans" practices in many state higher education systems (Griswold & Marine, 1996; Hossler, Lund, Ramin, Westfall & Irish, 1997). Urban public universities are in a particularly vulnerable position with the erosion in federal need-based grants, the increased emphasis on loans, and the rising public tuition. Many urban universities aim to attract local, urban students. In urban areas, many high school students live in poverty and have less than adequate academic preparation in high school (McDonnough, 1997; Orfield, 1992). To the extent urban universities serve students from their communities, they need to evaluate carefully and systematically the effects of financial aid on the opportunity for persistence.

This study examines the effects of student aid packages on within-year persistence by students enrolled at a public urban university. We examined four cross-sectional, random samples of full-time, in-state, undergraduate students who enrolled in the fall semesters of 1990-91, 1993-94, 1996-97, and 1997-98. The 1997-98 sample was the most recent group for which data was available. By examining within-year persis-

tence in four different academic years, the analyses provide insight into the effects of change in student aid policy (St. John, 1998, 1999).

Context

The case study university, hereafter referred as "the urban university," is located in a state with adequate student aid, as assessed by a study of the effects of student aid statewide (St. John, Hu, & Weber, 2000). However, this recent study indicated that many students who received packages with loans were middle-income. Therefore, there was reason to question whether student aid was still "adequate" for the state's major urban university, where a large percentage of students are from economically disadvantaged families.

The total undergraduate enrollment at the urban university in 1998-99 was 27,510. Compared to students on the flagship campus in the state higher education system, students at the urban university are older, more likely to claim independent status, and substantially more likely to be living off-campus. Also, the urban university serves a substantially higher proportion of African-Americans and economically disadvantaged students than the flagship campus.

Financial aid came from diverse sources. For example, one-third of all grants were from the Federal Pell Grant program ($8.5 million awarded in 1998-99) (Table 1). Veterans' benefits totaled more than $1.3 million, and other federal grants additionally provided more than $1 million. State grant programs provided about $7 million in three different programs. Higher Education Awards, the state's largest grant program, totaled $5.2 million. Twenty-first Century Scholars, a state program that focuses on access for low-income students who sign a drug-free pledge in middle school, totaled about $240,000. Other state grants totaled about $1.5 million. The grants from institutional sources totaled about $3.9 million, and comprised the third-largest source of aid from non-government sources.

In 1999, the campus student aid committee was asked to recommend strategies for refocusing a larger share of the discretionary institutional aid for merit rather than need. Out of the total of $3.9 million institutional aid money, a large proportion was allocated to state mandates such as disabled veterans, orphans, and employees (i.e., tuition waivers for the employee and his or her dependents and spouse). The amount that had been used for need-based grants was less than $500,000, while nearly $900,000 was used for a combination of merit and need-based aid. Therefore, only a small proportion of institutional aid could be redirected.

This persistence study was conducted to provide information for the student aid committee at the urban university. It was intended to provide baseline information about the effects of aid packages and other variables on persistence by full-time, in-state, undergraduate students enrolled in the early

TABLE 1
Financial Aid by Source of Grants at the Urban University in Academic Year 1998-99

Financial Aid Source	Amount (in dollars)
Federal Grants	*11,077,443*
Federal Pell Grant	8,544,567
FSEOG	833,708
Veterans' benefits	1,348,243
Other federal aid	350,925
State Grants	*6,951,816*
Higher Education Awards	5,199,440
21st Century Scholars	240,453
Other state aid	1,511,923
Institutional Grants	*3,884,346*
Mandates/Entitlements	*2,120,045*
Fee courtesy—employee spouse	150,246
Fee courtesy—employee dependent	299,515
Fee courtesy—employee	472,863
Police/firefighter—widows/orphans	19,974
Children of disabled veterans	1,177,447
Merit- and/or Need-based Aid	*1,764,301*
Graduate and professional schools	136,078
Undergraduate need-based	449,205
Undergraduate merit/need-based	848,043
Athletic awards	330,975
Other Private Aid	*2,887,280*
TOTAL	**24,800,885**

Undergraduate enrollment = 27,510

1990s. However, it is important to note that regardless of how the campus decided to redirect its discretionary aid, the base structure of federal, state, and institutional grant programs would not change substantially.

Research Approach

Model Specifications

This study adapted the "workable persistence model" proposed by St. John (1992) and tested in a series of studies (e.g., St. John, 1998, 1999; Somers, 1992). The base model included the variables related to student background. Males were compared to females. Age was a continuous variable. Self-supporting students were compared to dependent and non-aid applicants.

Families with reported incomes were divided into four equal groups—low, lower middle, upper middle, and high—and compared to students who did not have income reported (i.e., students who did not apply for need-based aid). African-Americans and students from other racial and ethnic groups were compared to whites.

The variables related to student college experiences were included in the base model. Undergraduate students in associate degree programs, sophomores, juniors, and seniors, were compared to freshmen enrolled in baccalaureate programs. Students who lived on campus were compared to students who did not. Students with A grades, C grades, or below-C grades were compared to students who received B grades.

The workable persistence model has proven to be a viable approach for assessing the direct effect of student aid on persistence.

In addition, the effects of four types of financial aid packages variables were examined. Students with grants only, loans only, grants and loans, and packages with college work-study and other types of aid (other) were compared to students who did not receive aid.

Statistical Methods

This study used logistic regression analyses to compare three different logistic regression models for each of the four years studied. Sequential logistic regression analyses were used to compare the effects of background on persistence, the effects of background plus college experience, and the effects of aid packages plus background and college experiences. Sequential logistic regression models were used for each of the three years studied.

Logistic regression analyses have proven a viable approach for assessing the effects of student aid on persistence. Delta-P statistics were imputed according to Peterson's recommendation (1985). For readers interested in statistics, the percent of cases correctly predicted, a measure of the fit of the model (–2 log likelihood [-2LogL]), and a conservative estimate of variance explained (Cox & Snell R^2) are presented for each step in each model.

Limitations

The workable persistence model has proven to be a viable approach for assessing the direct effect of student aid on persistence (St. John, 1999; Somers, 1992). However, there are other approaches to study persistence that could provide a more complete explanation of the persistence process (St. John, Cabrera, Nora, & Asker, in press). In spite of this limitation, the workable-model approach has two advantages compared to the alternatives. First, it uses extant data, which means that these analyses can be completed relatively easily. Second, it minimizes missing data and eliminates response bias, which means that it provides a more accurate assessment of the direct effects of aid than a survey.

The data set records the amounts of aid received rather than the amounts of aid awarded. For students who did not re-enroll for the spring term, we multiplied the amount of aid received by two to estimate actual aid awards. These seemed reasonable amounts and are reported here to illustrate trends of financial aid awarding. However, we do not report analyses of the effects of aid amounts in this paper because of this limitation.

Findings

The characteristics of students at the urban university and their financial aid packages changed during the 1990s (Table 2). The campus became more diverse over time. There were increases in the percentages of African-Americans and other minority students in the full-time, in-state, undergraduate student population. The percentage of low-income students increased slightly from 1990-91 until 1996-97, then decreased slightly in 1997-98. The percentage of students who were self-supporting increased from 23.9% in 1990-91 to 30.6% in 1997-98, while the percentage of students who did not apply for student aid declined from 60.6% to 36.5%. However, it should be noted that the increase in the percentage of students applying for financial aid was due to the enrollment-centered efforts at the urban university to encourage students to apply for aid. In addition, the percentage of students receiving below-C grades increased substantially, from 14.8% in 1990-91 to 21.5% in 1997-98. This reflects an increase in incoming, under-prepared students that resulted from the changed institutional enrollment policy and the economic conditions of urban settings.

There were substantial changes in aid packages during the period (Tables 2 and 3). In particular, the percentage of students at the urban university with loans only and with grants and loans increased substantially (from 5.7% to 14.7% and from 15.2% to 30.4%, respectively). Indeed, the increase in the percentage of the students with loans (about 25% of the entire population) represents most of the growth in aid applicants. Further, the average amount of loans awarded rose from $2,790 in 1990-91 to $5,164 in 1997-98. Average total grant awards also increased (at a more modest rate), from $831 to $1,593, during the same period. Tuition increased by a larger amount than grants, which led to the substantial increase (from $1,299 to $1,848) in net price (tuition minus grants).

The average federal grant did not change substantially between 1993-94 and 1997-98, although the percentage of students receiving federal grants did increase (from 23.8% to 36.6% of full-time undergraduates). Consequently, the average federal grant per full-time undergraduate increased, from $425 to $780. These changes again reflect the open admissions policy that resulted in admitting a more diverse and lower-income, student population.

State grants increased substantially in size, from $1,289

TABLE 2
Trends in Student Characteristics and Financial Aid for Full-time, In-state Undergraduate Students

Variable	1990-91		1993-94		1996-97		1997-98	
	Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean
Gender								
Male	39.9		39.4		42.2		41.9	
Female *	60.1		60.6		57.8		58.1	
Age								
Age (years)		23.0		23.8		23.6		23.5
Ethnicity								
African-American	7.5		9.2		10.5		9.7	
Other ethnicity	3.6		4.8		6.4		6.9	
White *	88.9		86.0		83.1		83.3	
Dependency								
Self-supporting	23.9		29.1		33.0		30.6	
Dependent & non-aid applicants *	76.1		70.9		67.0		69.4	
Income								
Low	11.2		10.1		21.4		17.9	
Lower-middle	10.7		16.1		18.4		16.6	
Upper-middle	10.2		12.7		14.6		15.7	
Upper	7.4		12.4		10.1		13.3	
Non-aid applicant *	60.6		48.8		35.5		36.5	
College GPA								
Below C	14.8		16.7		20.2		21.5	
C Average	26.2		22.4		20.7		20.0	
B Average *	50.9		50.3		47.7		46.7	
A Average	8.1		10.6		11.5		11.8	
Degree Program								
Associate	10.3		10.4		12.3		11.4	
Baccalaureate *	89.7		89.6		87.7		88.6	
Housing Status								
On-campus	7.3		4.8		3.2		2.7	
Other *	92.7		85.2		96.8		97.3	
Student Level								
Freshman *	21.7		21.3		26.9		26.5	
Sophomore	31.5		27.0		26.0		27.3	
Junior	18.0		16.5		13.3		14.8	
Senior	28.8		35.2		33.8		31.4	
Aid Package								
Grants only	19.1		17.9		18.5		19.8	
Loans only	5.7		6.3		14.3		14.7	
Grants and loans	15.2		27.3		35.7		30.4	
Other	3.5		3.7		2.5		3.7	
No aid *	56.6		44.9		28.9		31.5	

Note: Some columns may not total 100% due to rounding.
** indicates the uncoded comparison variable in the sets of design variables used in the logistic regression models.*

TABLE 3
Average Amounts of Financial Aid Awarded By Type and Source of Aid

Variable		1990-91		1993-94		1996-97		1997-98	
		Percent	Mean	Percent	Mean	Percent	Mean	Percent	Mean
Aid Amounts (By Type)									
Grant amounts	All		831		1,216		1,544		1,593
	Recipients	37.4	2,223	48.7	2,495	56.5	2,730	53.4	2,985
Loan amounts	All		631		1,187		2,622		2,471
	Recipients	22.6	2,790	36.2	3,276	52.0	5,039	47.9	5,164
Work-study amounts	All		56		61		57		74
	Recipients	3.5	1,607	3.7	1,675	2.5	2,250	3.7	2,004
Aid Amounts (Disaggregated)									
Federal grant amounts	All		425		624		754		780
	Recipients	23.8	1,787	30.9	2,018	37.3	2,018	36.6	2,131
State grant amounts	All		280		342		565		551
	Recipients	21.7	1,289	25.9	1,322	32.1	1,762	30.9	1,783
Other grant amounts	All		126		249		225		261
	Recipients	15.6	806	23.5	1,060	23.8	943	18.4	1,423
Subsidized loan amounts	All						1,854		1,619
	Recipients					47.5	3,904	42.7	3,793
Unsubsidized loan amounts	All						768		852
	Recipients					22.6	3,402	22.4	3,798
Tuition									
Full-time tuition amounts amounts			2,133		2,784		3,300		3,441
Net tuition amounts			1,299		1,564		1,756		1,848
Persisting percentage		90.4		89.2		87.8		86.4	
n =		1,848		1,968		2,087		2,125	

per recipient in 1990-91 to $1,783 in 1997-98. The percentage of students receiving state grants also increased. As a result, the state grant award increased from $280 per full-time student enrolled in 1990-91 to $551 in 1997-98.

The average amount of other (mostly institutional) grants actually declined in 1996-97 compared to 1993-94, but increased again in 1997-98. Discretionary institutional aid actually represented a very small portion of the total aid package students received; as noted above, the student aid committee could consider redirecting only a small portion of the total aid available.

The average loan award increased by $2,364 between 1990-91 and 1997-98. During this period, tuition increased by

about $1,307. This reflects a new context of high tuition, high loans, whereby students have to borrow more to pay for tuition and other expenses.

Given these developments—the growing diversity and poverty of the students coupled with the growing level of debt—there is reason to question whether changes in financial aid had an influence on persistence at this urban university.

Persistence in 1990-91

In 1990-91, 90.4% of the students who enrolled in the fall subsequently re-enrolled in the second semester (see Table 4). Following the workable persistence model's three steps, the first step found that three background variables had a significant association with persistence: age, gender, and income. Older students and males were more likely to persist in the first step, but these variables ceased being significant when college experience was considered. High-income aid applicants were more likely to persist in the first two models, but not when aid was considered.

Given the growing diversity and poverty of the students coupled with the growing level of debt, there is reason to question whether changes in financial aid had an influence on persistence.

The second step adds variables related to experience in college. Students with below-C grades were substantially less likely to persist than students with B averages (by 32.7 percentage points). Students with C grades were somewhat less likely to persist, and students with A grades were more likely to persist than students with B grades. Sophomores, juniors, and seniors were more likely to persist than freshmen. These relationships were consistent across the three models that included financial aid.

In the final step, the receipt of packages with loans only and with grants and loans were positively associated with persistence. In contrast, packages with grants only and other types of packages were neutral, indicating an equal probability of persisting, or aid adequacy. The fact that upper-middle income aid applicants were not less likely to persist at this step suggests that loans provide a source of advantage to this population in persistence, given the significance of packages with loans.

Persistence in 1993-94

In the first step, two background variables—age and race/ethnicity—were significant (Table 5). Older students were more likely to persist, while African-Americans were less likely to persist. Neither variable was significant in the second step, however, which indicates the significance of other variables related to the college experience.

In the second step, grades and year in college continued to be significantly associated with persistence. A grades were positively associated with persistence, while C and below-C grades had a negative association. Sophomores, juniors, and seniors continued to be more likely to persist. These patterns held across the subsequent models.

TABLE 4
Analysis of Persistence by Full-time Undergraduate Students in 1990-91

Variable	Background		College Experiences		Financial Aid Package	
	Delta-p	Significance	Delta-p	Significance	Delta-p	Significance
Gender						
Male	-0.040	*	-0.015		-0.014	
Age						
Age	0.003	*	-0.001		-0.001	
Race/ethnicity						
African-American	-0.037		0.016		0.010	
Other	-0.008		-0.007		-0.006	
Dependency						
Self-supporting	0.011		-0.032		-0.078	
Income						
Low	-0.012		0.033		-0.002	
Lower-middle	0.010		0.034		-0.013	
Upper-middle	-0.008		0.023		-0.036	
High	0.053	*	0.066	**	0.026	
College GPA						
Below C			-0.327	***	-0.321	***
Mostly C			-0.053	*	-0.053	*
Mostly A			-0.062		-0.059	
Degree Program						
Associate			0.018		0.014	
Housing Status						
On-campus			0.053		0.052	
Student Level						
Sophomore			0.050	***	0.051	***
Junior			0.059	***	0.059	***
Senior			0.066	***	0.065	***
Package						
Grants only					0.037	
Loans only					0.076	*
Grants and loans					0.066	*
Other package					0.064	
Baseline P (%)	90.4		90.4		90.4	
-2 Log L	1150.1		982.5		973.2	
R^2	0.011		0.097		0.102	
Percent correctly predicted	90.4		90.4		90.7	

*Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.*

In the final step, packages with grants and loans were positively associated with persistence, while all other types of packages were neutral, indicating adequacy. This means that students with grant awards who were also willing to take out loans were more likely to persist than were students without financial aid, while students with grants only were not significantly different from these same students. However, packages with loans only were not significant in persistence in 1993-94, as they had been two years earlier.

TABLE 5
Analysis of Persistence by Full-time Undergraduate Students in 1993-94

Variable	Background		College Experiences		Financial Aid Package	
	Delta-p	Significance	Delta-p	Significance	Delta-p	Significance
Gender						
Male	-0.023		0.004		0.004	
Age						
Age	0.005	**	-0.002		-0.003	
Race/Ethnicity						
African-American	-0.074	**	-0.010		-0.012	
Other	-0.008		-0.037		-0.040	
Dependency						
Self-supporting	0.002		-0.008		-0.012	
Income						
Low	-0.038		0.014		-0.056	
Lower-middle	-0.036		0.010		-0.060	
Upper-middle	-0.002		0.016		-0.049	
High	-0.038		0.000		-0.054	
College GPA						
Below C			-0.296	***	-0.305	***
Mostly C			-0.052	*	-0.055	*
Mostly A			0.081	*	0.082	*
Degree Program						
Associate			0.027		0.029	
Housing Status						
On-campus			0.058		0.057	
Student Level						
Sophomore			0.042	**	0.041	*
Junior			0.064	***	0.064	***
Senior			0.072	***	0.072	***
Package						
Grants only					0.027	
Loans only					0.021	
Grants and loans					0.062	*
Other package					0.069	
Baseline P (%)	89.2		89.2		89.2	
-2 Log L	1322.4		1134.8		1125.1	
R^2	0.014		0.103		0.108	
Percent correctly predicted	89.2		89.2		89.5	

*Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.*

Persistence in 1996-97

In the first step, males were less likely to persist and older students were more likely to persist (Table 6). Again, these variables ceased being significant in the second step, indicating an interaction with the college experience. High-income aid applicants were more likely to persist.

In the second step, students who had below-C grades were less likely to persist and students who lived on campus

TABLE 6
Analysis of Persistence by Full-time Undergraduate Students in 1996-97

Variable	Background		College Experiences		Financial Aid Package	
	Delta-p	Significance	Delta-p	Significance	Delta-p	Significance
Gender						
Male	-0.038	*	-0.020		-0.020	
Age						
Age	0.005	**	-0.003		-0.003	
Race/Ethnicity						
African-American	-0.043		0.024		0.022	
Other	0.031		0.025		0.025	
Dependency						
Self-supporting	0.022		-0.037		-0.044	
Income						
Low	-0.017		0.039		-0.004	
Lower-middle	-0.049		0.004		-0.055	
Upper-middle	0.020		0.035		-0.014	
High	0.076	***	0.077	**	0.049	
College GPA						
Below C			-0.383	***	-0.382	***
Mostly C			-0.050		-0.049	
Mostly A			0.032		0.027	
Degree Program						
Associate			0.016		0.015	
Housing Status						
On-campus			-0.199	***	-0.210	***
Student Level						
Sophomore			0.048	**	0.048	**
Junior			0.078	***	0.078	***
Senior			0.088	***	0.088	***
Package						
Grants only					0.039	
Loans only					0.051	
Grants and loans					0.051	
Other package					0.070	
Baseline P (%)	87.8		87.8		87.8	
-2 Log L	1506.3		1243.6		1241.0	
R^2	0.021		0.136		0.137	
Percent correctly predicted	87.8		88.1		87.9	

*Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.*

were less likely to persist than students who lived in the community (at home or on their own). The significance of this variable could be related to costs and/or social issues related to living on campus, and merits further examination by institutional policy makers. Sophomores, juniors, and seniors were more likely to persist than freshmen.

In the final step, all types of aid packages were neutral for the first time, indicating adequacy. However, when we com-

pare this finding to the prior two years, there appears to have been a modest erosion in the effectiveness of financial aid in enhancing persistence. Indeed, packages with grants and loans had been significant in relation to persistence in the prior years studied. This change could be attributable to the increase in net price noted earlier.

Persistence in 1997-98

In the final analysis we examined within-year persistence for 1997-98 (Table 7). As with previous years, in the first step, older students were more likely to persist and African-Americans were less likely to persist. Given that these variables ceased being significant in the second step, we again assume an interaction with academic experience, both grades and year in college. High-income aid applicants were more likely to persist in the first two steps, but not the third (when the effects of aid were considered). Consistent with the prior year's findings, this suggests that aid packages advantaged middle-class students more than low-income students.

Six variables related to college experience were significant in both steps in which they were included. Students with C grades and below-C grades were less likely to persist, consistent with the prior years. Further, students who lived on campus were less likely to persist, consistent with 1996-97. In addition, sophomores, juniors and seniors were more likely to persist, a pattern that was also similar to prior years.

Finally, when aid was considered (step 3), students with financial aid packages that included work-study support along with other forms of aid (other packages) were more likely to persist. Perhaps the supplemental revenue provided by work-study made a difference. In contrast, students with all other types of packages (i.e., grants only, loans only, or grants and loans) had the same probability of persisting as students without any type of aid package.

Conclusion

College affordability is an issue of growing complexity in urban public universities, as illustrated by this case study. In the 1990s, tuition charges have consistently risen faster than grants in spite of a substantial increase in state grants in 1996-97. Given these developments, it is important to consider the effects of student aid on continuous enrollment (or within-year persistence). The reader is reminded that the average federal grant award remained stable between 1993-94 and 1996-97, but that during the 1990s inflation eroded the purchasing power of federal grants. The erosion of need-based federal grants was mitigated by increases in state grants. However, there was erosion in the efficacy of aid packages. This pattern raises questions for institutional financial aid policy makers.

At the urban university there has been an initiative to redirect scarce institutional aid funds toward merit awards. This

TABLE 7
Analysis of Persistence by Full-time Undergraduate Students in 1997-98

Variable	Background		College Experiences		Financial Aid Package	
	Delta-p	Significance	Delta-p	Significance	Delta-p	Significance
Gender						
Male	-0.021		0.014		0.014	
Age						
Age	0.005	**	-0.003		-0.003	
Race/Ethnicity						
African-American	-0.088	**	-0.005		-0.014	
Other	-0.031		-0.045		-0.051	
Dependency						
Self-supporting	0.039		0.017		0.022	
Income						
Low	-0.014		0.018		-0.063	
Lower-middle	0.012		0.039		-0.019	
Upper-middle	0.039		0.051	*	0.010	
High	0.069	***	0.059	*	0.041	
College GPA						
Below C			-0.350	***	-0.346	***
Mostly C			-0.092	**	-0.089	**
Mostly A			0.012		0.007	
Degree Program						
Associate			0.029		0.033	
Housing Status						
On-campus			-0.224	***	-0.228	***
Student Level						
Sophomore			0.069	***	0.069	***
Junior			0.082	***	0.083	***
Senior			0.103	***	0.104	***
Package						
Grants only					0.045	
Loans only					0.008	
Grants and loans					0.064	
Other package					0.086	*
Baseline P (%)	86.4		86.4		86.4	
-2 Log L	1640.6		1371.9		1363.0	
R^2	0.021		0.138		0.141	
Percent correctly predicted	86.5		86.8		86.9	

*Note: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001.*

shift in institutional policy was intended to attract more high-ability students. Given that low college grades had a substantial and negative influence on persistence, this analysis can be used to build a rationale for the proposed strategy. However, this strategy assumes that state and federal grants will be adequate for students with financial need; one might question whether these forms of aid will remain sufficient. In the most recent year studied, packages with work-study were positively

associated with persistence while other types of packages were not. This could mean that the economic value was eroding for aid packages with grants and no work-study. At the very least, it is important to note the effects of the new policy in relation to the base line created by this analysis.

More generally, this study further confirms that the workable-model approach can be used to assess the effects of changes in aid policy (St. John, 1998, 1999). In this study we found there was an erosion in the efficacy of aid packages with grants, an issue that could be problematic, especially in urban universities located in states with less substantial state grant programs. Clearly there is a need for routine and systematic analyses of the effects of different types of student aid on student higher education opportunities.

Acknowledgments

This paper was prepared with financial support from the Strategic Directions Initiative at Indiana University and the Lilly Endowment. Information was provided by the Indiana Commission for Higher Education. Analyses were conducted at the request of the urban university in this case study. The opinions expressed in the paper are the authors' and do not represent official policies or positions of any of these collaborating organizations.

References

Callan, P. M., & Finney, J. E. (Eds.) (1997). Public and private financing of higher education: Shaping public policy for the future. Phoenix, AZ: American Council on Education and Oryx Press.

Griswold, C. P., & Marine, G. M. (1996). Political influence on state policy: Higher tuition/higher aid and the real world. Review of Higher Education, 19, 361-389.

Hearn, J. C., & Longanecker, D. (1985). Enrollment effects of alternative postsecondary pricing policies. Journal of Higher Education, 56, 735-750.

Hossler, D., Lund, J. P., Ramin, J., Westfall, S., & Irish, S. (1997). State funding for higher education: A Sisyphean task. Journal of Higher Education, 68, 160-196.

McDonnough, P. M. (1997). Choosing colleges: How social class and schools structure opportunity. Albany: State University of New York Press.

McPherson, M. S., & Schapiro, M. O. (1991). Keeping colleges affordable. Washington, DC: Brookings Institution.

McPherson, M. S., & Schapiro, M. O. (1998). The student aid game. Princeton: Princeton University Press.

Orfield, G. (1992). Money, equity, and college access. Harvard Educational Review, 62, 337-372.

Petersen, T. (1985). A comment on presenting results from logit and probit models. American Sociological Review, 50, 130-131.

St. John, E. P. (1992). Workable models for institutional research on impact of student financial aid. Journal of Student Financial Aid, 22(3), 13-26.

St. John, E. P. (1994). Prices, productivity, and investment: Assessing financial strategies in higher education. ASHE-ERIC Higher Education Report No. 3. Washington, DC: The George Washington University.

St. John, E. P. (1998). The effects of changes in student aid policy on persistence: A case study of a private university. Journal of Student Financial Aid, 28(1), 7-18.

St. John, E. P. (1999). Evaluating state grant programs: A case study of Washington's grant program. Research in Higher Education, 40, 149-170.

St. John, E. P., Cabrera, A. F., Nora, A. & Asker, E. H. (in press). Economic influences on persistence reconsidered: How can finance research inform the reconceptualization of persistence research. In J. M. Braxton (Ed.), Rethinking the departure puzzle: New theory and research on college student retention. Nashville: Vanderbilt University Press.

St. John, E. P., Hu, S. & Weber, J. (2000) Affordability in public colleges and universities: The Influence of student aid on persistence in Indiana public higher education. Policy Research Report # 00-1. Bloomington, IN: Indiana Education Policy Center.

Slaughter, S., & Leslie, L. L. (1997). Academic capitalism. Baltimore: Johns Hopkins University Press.

Somers, P. (1992). A dynamic analysis of student matriculation decisions in urban public universities. University of New Orleans. Unpublished Ph.D. dissertation.