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The Impact of Aid Packages on Educational Choices: High Tuition-High Loan and Educational Opportunity

By Edward P. St. John

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During the past three decades there have been substantial changes in federal and state student aid policies, but what effect did these policy changes have on educational opportunity? This paper summarizes prior studies by the author with a focus on untangling how changes in policy have influenced changes in opportunity. It also recommends new strategies for lowering student loan debt, increasing federal and state cooperation in providing adequate need-based grant aid, and developing policies that target debt forgiveness for mid-skilled workers and middle-class professionals.

For the past two decades, the federal government has emphasized loans as a means of promoting educational opportunity. Although many economists have argued that loans have little influence on educational opportunity (e.g., Kane, 1999; McPherson & Schapiro, 1991), enrollments have consistently been higher than predicted. Indeed, in the late 1970s, a number of groups predicted enrollment declines and closure of private colleges (Breneman, Finn, & Nelson, 1978; Carnegie Commission on Higher Education, 1973; U. S. Department of Education, National Center for Education Statistics [NCES], 1980). Instead, the enrollments did not decline, thanks to an unexpected upturn in enrollment by traditional-age students (NCES, 1998). Enrollments were higher than the "mid-range" predictions made by NCES (1980) for the 1980s and for the 1990s (NCES, 1990). These trends raise the question: Did the expansion of loans help increase educational opportunity in the United States?

As we ponder this question, we also need to reconsider the definition of educational opportunity. Historically, the intent of Title IV programs was to promote "equal educational opportunity" (Mumper, 1996), which meant equalizing the opportunity for the poorest in American society to attain a higher education, compared to the majority that could afford to attend. Over time, as loans have replaced grants as the primary form of federal student aid available, a new "high tuition/high loan" environment emerged. Indeed, politicians now push loans and tax credits not only to enable middle-class students to attend more expensive colleges, but also as political strategies for attracting middle-class voters. Therefore, in this context we must ask three questions that will be addressed in this study:

- What role did loans play in expanding higher education opportunity?

- Has the balance of aid available helped to equalize postsecondary opportunity for the poor?
- How can we improve the efficacy of loans and other forms of aid, if the goal is to expand educational opportunity to the middle class, while equalizing postsecondary opportunity for the poor?

Before considering these questions, the paper provides background on the assumptions that guided prior higher education policy research done by the author and his colleagues since the early 1980s. Then the changes in the effects of persistence on student aid over the past three decades are examined.

Background

An alternative approach to assessing the effects of student aid was proposed by Stephen P. Dresch's (1975) criticism of the use of net-price measures in policy studies. While his criticism was directed at National Commission on the Financing of Postsecondary Education's (NCFPE) analysis (1973) and related the generalized state planning models (e.g., Herzlinger & Jones, 1981), it provided a basis for developing an alternative set of assumptions for assessing the impact of prices and subsidies. The mainstream response by market theorists to Dresch's methodological criticisms—the development of standardized price-response coefficients (SPRCs) (Jackson & Weathersby, 1975)—did not address the fundamental questions he raised about the net-price assumptions. Based on these and related studies, an alternative set of assumptions can be constructed (Dresch, 1975; St. John & Starkey, 1995a). Simply stated, these alternative assumptions are:

1. Students might respond differently to subsidies (grants, loans, and work) than they do to costs of attending (tuition, books, housing, travel, and other living costs).
2. Students might respond differently to prices and subsidies in persistence than they do in first-time enrollment.
3. Students' responses to costs and subsidies might change over time as a result of changes in public finance strategies and the labor market.
4. Students and prospective students with different financial means might respond to changes in prices and price subsidies in different ways, depending on the combination of costs and subsidies they would have faced before the changes.
5. The development of price-response measures must be tailored to the context using appropriate research as a base.
6. The pricing process (setting tuition and aid policies and estimating the effects of those policies) is a recursive process, with changes in policy influencing the ways students respond to changes in prices. Thus, the assessment of pricing alternatives (changes in tuition and tuition aid strategies) is at best a heuristic process that can be informed by systematic evaluations of the impact of prices and subsidies.

These alternative assumptions provide a refined but more complex lens for viewing the relationship between prices and enrollment. They hold up to empirical evidence better than the older net-price assumptions (St. John, 1993; St. John & Starkey, 1995a). They also provide a better way to evaluate the effects of changes in student aid policy.

Review Approach

Over time my colleagues and I have used these alternative assumptions to guide several studies of the effects of student aid. Initially new assumptions were tested using national databases in studies of first-time enrollment and persistence. A workable approach was then tested using extant institutional and state databases to assess the effects of aid on first-time enrollment and persistence (St. John, 1992; St. John & Somers, 1997; Somers, 1992; Somers & St. John, 1997a). Studies assessed the effects of student aid on first-time enrollment and persistence by students who made their choices during three time periods when different policies were in effect.

The studies reviewed below used similar logical models and statistical methods. The analyses of first-time enrollment considered variables related to student background (including family income), high school achievement, and student aid (or prices and subsidies). The persistence models considered background, high school achievement (when available), college experiences (including grades, year in college, and type of institution attended), and student aid (or prices and subsidies). In the first two sets of studies reviewed below, we compared two methods for assessing the effects of aid: 1) the amounts of tuition charged and aid awarded; and 2) the types of packages received. The recent studies analyzed the types of aid packages received because it proved a more reliable approach for working with state databases.

This review presents the delta-p statistics, a measure of the change in probability of the outcome (enrollment or persistence) for significant aid variables in a diverse set of logistic regression studies. A delta-p of .070 for grant amounts in a persistence study—a continuous variable, such as aid amounts divided by 1,000—means that each thousand dollars of grant differential for the otherwise-average student improved the probability of persistence by 7 percentage points. In contrast, a delta-p of .060 for an aid package with grants only in a persistence study—a dichotomous variable—would mean that the average student who received grants only was 6 percentage points more likely to persist than the average student who did not receive aid.

This review method of comparing studies is similar to the methods that have been used in other reviews of finance studies (e.g., Heller, 1997; Jackson & Weathersby, 1975; Leslie & Brinkman, 1988), but no attempt is made to average across

The results confirmed the hypotheses that there were differences in the ways students responded to prices and subsidies, and in price response between first-time enrollment and persistence.

Understanding the Effects of Changes in Financial Aid Policy

studies. Rather, the focus here is on differences across studies. This review considers how changes in federal and state policies have influenced student outcomes.

The review below examines research on students enrolled during three time periods: the 1970s and early 1980s, a period when federal student aid was sufficient to promote equal opportunity; the late 1980s, a period when the effectiveness of federal student aid had substantially eroded; and the 1990s, a period when state investment became more important in keeping public colleges affordable for all students.

When Aid Promoted Equal Opportunity

The fact that student aid was well funded in the 1970s and early 1980s, a period when many of the early studies on the impact of student aid were being conducted (e.g., Astin, 1975; Jackson, 1978; Manski & Wise, 1983; Terkla, 1985), complicated efforts to review demand studies. The dominant approach to assessing the effects of prices and aid in the early studies was to estimate a price-response coefficient. However, at least a few early studies considered whether the receipt of aid had a significant and positive effect (e.g., Jackson, 1978; Terkla, 1985). As it turns out, both approaches have value in building an understanding of the effects of aid.

In studies conducted using data on students enrolled during the middle 1980s, the author tested some more refined approaches to assessing the effects of aid packages and the amounts of student charges and price subsidies. Both types of studies are reviewed below, as a means of building an understanding of the ways student aid influenced student outcomes during this earlier period when student aid was adequate.

Student Price Response: Historically, economists have focused on price response, an approach that is commonly communicated as a change in probability of enrollment per \$100 (or \$1,000) of aid awarded. Dresch's theory suggests that students could respond differently to different types of prices and subsidies, and that the way they respond could change over time, as a result of changes in aid policy and the labor market. These studies are summarized below.

The initial study using the new price-response approach measured the effects of prices and price subsidies on first-time enrollment by students in the high school class of 1980 who applied for college (St. John, 1990a). This study examined first-time enrollment by all students in the class, as well as by students in different income groups. The results are compared with a couple of standardized price-response measures (see Table 1).

The study discovered that students were responsive to the amount of tuition charged, as well as to the amounts of

TABLE 1
The Effects of Prices and Price Subsidies on First-time Enrollment and Persistence in the Early 1980s
(Dollar amount/1000)

	Changes in Probability per \$1000			
	Delta-p Tuition \$	Delta-p Grant \$	Delta-p Loan \$	Delta-p Work \$
First-time Enrollment, 1982 Cohort in 1982-83 Dollars				
All	-.028	.043	.038	.046
Low-income	-.034	.088	NS	NS
Lower-middle income	-.039	.035	.053	NS
Upper-middle income	-.033	.031	.063	NA
Upper income	-.014	NS	NS	NA

Notes: NA = Not available; NS = Not significant. The delta-p statistics are presented when the beta coefficients were significant at the .01 or .05 level.
Source: St. John, 1990a

grants, loans, and work-study awarded (all college applicants model). Further, low-income students were substantially more responsive to grants than to tuition, but were not responsive to other forms of student aid. Middle-income students were more responsive to loans than to grants or tuition, while upper-middle-income students were highly responsive to loans. Upper-income students were not responsive to student aid and were only modestly responsive to tuition charges.

These results confirmed the hypotheses that there were differences in the ways students responded to prices and subsidies, and in price response between first-time enrollment and persistence. The results also confirmed the notion that loans, as well as grants, influenced enrollment behavior (St. John & Noell, 1989; St. John, Kirshstein, & Noell, 1991), a finding that raised new questions that merited further analysis.

The Effects of Aid Packages

By the middle 1980s, a few educational researchers had examined the effects of the receipt of aid on first-time enrollment (Jackson, 1978) and persistence (Terkla, 1985). However, the debates about the efficacy of loans raised questions about the impact of different types of aid. After a review of the research used in the earlier studies, a model of the receipt-of-aid approach was tested (St. John & Noell, 1989; St. John, 1989). The model involved coding the types of aid packages students received into categories: students who received grants only, loans only, loans and grants, and so forth. When the types of packages received were included in logistic regression models along with other variables that influence persistence, the models estimated the change in probability of persisting that was

The findings indicated that the balance between loans and grants being used in the early 1980s promoted equal opportunity.

attributable to receiving an aid package of a particular type. Essentially, these models compared the average aid recipient with the otherwise average student who did not receive aid. Two of the studies that tested this method merit mention, given the purposes of this review.

A study of the effects of student aid on persistence (St. John & Noell, 1989), examined the impact of aid packages on first-time enrollment by all students in the high school classes of 1972, 1980, and 1982 and analyzed persistence rates for Caucasians, African Americans, and Hispanics. The results (see Table 2) showed that all types of aid packages increased the probability of persistence in the 1970s and 1980s for all students. This indicated that student aid remained effective in promoting first-time enrollment. Results differed somewhat by race/ethnicity, however. Hispanics in the high school class of 1980 responded positively to packages with grants, including packages with loans and grants, but did not respond positively to loans as the only form of aid, or to other packages (usually loans and work study). African Americans in the high school classes of 1980 and 1982 responded positively to packages with loans only, but were more responsive to packages that included grants than to packages with loans. Caucasians in both the high school classes of 1980 and 1982 responded positively to packages with grants and loans and were more responsive to loans only than grants only.

These findings illustrate that packages with loans were generally positively associated with first-time enrollment in the early 1980s. However, African Americans and Hispanics were not so positively influenced by loans as they were by grants. Thus, these findings indicated that the balance between loans and grants that was being used in the early 1980s promoted equal opportunity. However, because there are no proven methods of determining when differences between the size of delta-p statistics are significant statistically, it was appropriate to conclude that all forms of aid promoted educational opportunities.

Further inquiry (St. John, 1989) found that in the 1970s financial aid packages with grants were positively associated with year-to-year persistence by students enrolled in four years of college. Packages with loans were negatively associated with persistence between the first and second years of college, but were positively associated with persistence by upper-division students (see Table 3). By the early and middle 1980s, packages with both grants and loans were positively associated with persistence across the first three years of college, but loans were negatively associated with persistence (continued enrollment or graduation) by seniors.

These findings indicated that packages with loans were generally positively associated with the opportunity to enroll and persist and were consistent with the conclusions that loans as well as grants promoted equal opportunity (St. John and Noell,

TABLE 2
The Effects of Aid Packages on First-time Enrollment in
the 1970s and 1980s, with Special Consideration of
Minority Enrollment in the Early 1980s

	<u>Grants Only</u>	<u>Loans Only</u>	<u>Work Only</u>	<u>Other Package</u>
Analyses of Freshman Cohorts				
Freshmen in 1972	.062	.108	.149	.147
Freshmen in 1980	.101	.095	.110	.082
Freshmen in 1982	.062	.078	.097	.095
Analyses of Ethnic Groups for the 1980 Cohort				
Caucasians	.089	.088	NA	.071
African Americans	.177	.145	NS	NS
Hispanics	.141	NS	NA	NS
Analyses of Ethnic Groups for the 1982 Cohort				
Caucasians	.042	.072	NS	.081
African Americans	.150	.112	NA	.186
Hispanics	.038	.131	NS	NS

Notes: NS = Not significant (indicates equal probability of enrollment); NA = Not available (not a sufficient number of cases for analysis). Delta-p statistics are presented for beta coefficients significant at the .01 or .05 level. Delta-p statistics compare students with packages to students without aid.

Source: St. John and Noell, 1989.

1987). However, it was also clear that there needed to be caution about using loans in packages for minority students (St. John & Noell, 1989).

Inadequate Federal Grant Aid

In contrast to the 1970s and early 1980s, the middle and late 1980s was a period of cuts in federal grants and tuition increases (St. John, 1994). While private institutions made adaptations to their pricing strategies to promote enrollment, states and public institutions were slow to make these adjustments. As the analysis of participation rates revealed (St. John, 1994), there was a decline in the opportunity for minorities to enroll and persist.

In 1986-87, the federal government conducted the first National Postsecondary Student Aid Survey (NPSAS:87). This database provided a random sample of the records of all students enrolled in the fall term, including their student aid records and aid awards, as well as a follow-up survey of all students. Thus, it provided an ideal sample for examining the effects of student aid on within-year persistence, an appropriate indicator of whether students can afford continuous enrollment.

TABLE 3
The Impact of Aid Packages on Year-to-Year Persistence
by Students in the 1972, 1980, and 1982 Cohorts

	Grants Only	Loans Only	Grants and Loans	Grants and Work	All
Freshman to Sophomore					
1972 cohort	NS	-.072	.025	.099	NS
1980 cohort	NS	.048	.056	NS	.065
1982 cohort	.039	NS	.073	NS	.115
Sophomore to Junior					
1972 cohort	.039	NS	.089	.099	.105
1980 cohort	.047	NS	.105	NS	.100
1982 cohort	.056	NS	NS	NS	NS
Junior to Senior					
1972 cohort	.049	NS	.053	-.038	.118
1980 cohort	NS	.054	NS	.062	NS
1982 cohort	.049	.053	.080	NS	.095
Senior to Graduation (or 5th year)					
1972 cohort	NS	NS	NS	NS	NS
1980 cohort	NS	-.069	NS	NS	NS

Notes: NS = Not significant (indicates equal probability of persisting). Delta-p statistics compare students with packages to students who did not receive aid. Delta-p statistics are presented when the beta coefficients were significant at the .01 or .05 level.

Source: St. John, 1989.

Price Response in Persistence

NPSAS:87 represented the first study of all students enrolled in the entire postsecondary system in the United States and was a sample of sufficient size to allow for a range of group comparisons. Table 4 summarizes some of the key studies that NPSAS:87 examined different populations. By 1986-87 a very different pattern of price response had emerged than had been seen in earlier studies. Key findings about differences in response to tuition charges were as follows:

- There was substantial variation in price response to tuition by traditional-age students. Among traditional-age undergraduates, African Americans were more sensitive to tuition than Caucasians; students in public colleges were more sensitive to tuition than students in private colleges.
- Adult students and part-time students were more sensitive to tuition charges than traditional-age students.
- Students in community colleges were more sensitive to tuition charges than students in four-year colleges.
- Graduate students were less sensitive to tuition charges than were undergraduates.

In addition, there was substantial variation in the ways diverse groups of students responded to student aid. Most importantly, student aid ceased being positively associated with persistence. For all traditional-age undergraduate students (St. John & Starkey, 1995a) and all undergraduates (Wells, 1996), grant amounts were not significant (and presumably were adequate), while loan amounts were negatively associated with persistence. However, grants were positively associated with persistence in private colleges, and negatively associated with persistence in public colleges (St. John, Oescher, & Andrieu, 1991), indicating the adaptations by private colleges helped keep aid viable. Key findings include—

- Grants were positively associated with persistence in proprietary schools (St. John, Starkey, Paulsen, & Mbadugha, 1995), indicating that aid was adequate.
- Grant aid was insufficient (and negatively associated with persistence) for African Americans, but was adequate for Caucasians (Kaltenbaugh, St. John, & Starkey, 1999).
- Grants were not adequate for low-income and lower-middle-income students, but were adequate for upper-middle-income students (St. John & Starkey, 1995a).
- Grants were insufficient for adults (St. John & Starkey, 1995b) and part-time undergraduates (Starkey, 1994), as well as for students in community colleges (Hippensteel, St. John, & Starkey, 1996).
- Loans were negatively associated with persistence when they were significant (St. John, Oescher, & Andrieu, 1992; St. John & Starkey, 1995b; Wells, 1996), indicating that excessive debt burden was becoming a problem.
- The amount of work-study awarded was also negatively associated with persistence when it was significant, indicating that either the low wages or the time required for on-campus work had become problematic.

Thus, a general pattern of aid inadequacy had emerged. The institutions that had made the fewest adaptations—public colleges and especially community colleges—had the most substantial affordability problems. Further, the most vulnerable in society—minorities and low-income students—faced more substantial affordability problems than students from middle-income families, Caucasians, and students in private colleges. Thus, the inadequacy of government aid was contributing to the growing gap in opportunity in the late 1980s.

Understanding Grant Inadequacy

These findings introduced a new complexity into the debates about the impact of student aid. Logically, if need-based aid were inadequate it would be negatively associated with full-time enrollment or persistence under conditions that have prevailed since the late 1980s. Grant amounts and unmet need would increase as students' financial need increased, which

A general pattern of aid inadequacy had emerged [by 1986-87]. The institutions that had made the fewest adaptations—public colleges and especially community colleges—had the most substantial affordability problems.

TABLE 4
The Effects of Prices and Subsidies on Persistence:
Summary of Delta-p Statistics for Tuition and Aid Amounts
from Studies Using NPSAS:87 (Dollar amount/1000)

	Tuition		Grants/ Scholarships		Loans		Work/ Assistantships	
	Delta-p	Sig	Delta-p	Sig	Delta-p	Sig	Delta-p	Sig
I. Graduate Students								
All (Andrieu & St. John, 1993)	-0.0192	***	NS		NS		-0.0055	***
Public (Andrieu & St. John, 1993)	-0.0234	***	NS		NS		-0.0067	*
II. Undergraduates								
All (Wells, 1996)	-0.0506	***	NS		NS		-0.0479	***
Health (Wells, 1996)	-0.0581	***	NS		-0.0231	***	NS	
A. Traditional-age Undergraduates - General								
African American (Kaltenbaugh, St. John, & Starkey, 1990)	-0.0425	***	-0.0124	**	NS		-0.0492	**
European American (Kaltenbaugh, St. John, & Starkey, 1990)	-0.0273	***	NS		-0.0039	**	-0.0166	***
B. Traditional-age Undergraduates in 4-year Institutions								
All (St. John & Starkey, 1995a)	-0.0262	***	NS		-0.0036	**	-0.0191	***
Private (St. John, Oescher, & Andrieu, 1992)	-0.0210	***	0.0022	*	NS		-0.0195	***
Public (St. John, Oescher, & Andrieu, 1992)	-0.0494	***	-0.0152	***	-0.0060	*	NS	
Low-income (St. John & Starkey, 1995a)	-0.0345	***	-0.0100	***	NS		NS	
Lower-middle income (St. John & Starkey, 1995a)	-0.0335	***	NS		NS		-0.0352	***
Upper-middle income (St. John & Starkey, 1995a)	-0.0227	***	NS		NS		NS	
C. Adult Undergraduates in 4-year Institutions								
Private institutions (St. John & Starkey, 1995b)	-0.0640	***	NS		NS		-0.0560	**
Public institutions (St. John & Starkey, 1995b)	-0.0130	***	-0.0220	***	-0.0160	**	NS	
D. Undergraduates in 2-year Institutions								
Traditional age (St. John & Starkey, 1994)	-0.1399	***	-0.0569	***	NS		NS	
Adult (Hippensteel, St. John, & Starkey, 1996)	-0.1755	***	-0.0412	***	NS		NS	
E. Part-time Undergraduates								
(Starkey, 1994)	-0.1105	***	-0.0257	**	NS		NS	
F. Students in Proprietary Schools								
(St. John, Starkey, Paulsen, & Mbadugha, 1995)	-0.0573	***	NS		NS		NS	

Notes: *significant at 0.1 level, **significant at 0.05 level, *** significant a 0.01 level, NS = Not significant (indicates aid adequacy).

was consistent with most need-analysis methods. For a decade it has been evident to some policy analysts that student aid was inadequate for low-income students in the 1980s (e.g., Mumper, 1996). Many studies also confirmed that in the late 1980s, student aid was inadequate for students from low-income families because of declines in federal grants.

The New Affordability Challenge

In the early 1990s, student aid was generally adequate to maintain educational opportunity, but there was great diversity in different settings because of variability in institutional prices and grant aid. Two state-level studies, in Washington State and Indiana, provide examples of the different approaches.

The Washington Grant Study. In 1993, the State of Washington Coordinating Board for Higher Education requested that a study be conducted on the impact of aid over time. The study analyzed separately the impact of aid on persistence for the three groups of institutions (four-year public colleges, community colleges, and private colleges). The analysis summarized below and shown on Table 5 focused on public four-year colleges.

In 1993-94 there was an increase in grants for students enrolled in public colleges in Washington State, from \$2,722 to \$3,152 per recipient. (St. John, 1999). However, the percentage of students receiving grants did not change substantially. In addition, the percentage of students who borrowed grew substantially and the average loan amount jumped by more than \$1,200. Thus, public colleges experienced a new context for financial aid, influenced by both the expansion of state grants and the expansion of federal loans.

The increase in grants did have an influence on the opportunity to persist (see Table 5). In 1991-92 and 1992-93, the effects by students by aid package (grants only, loans only, loans and work, or grants and work) were not significant, indicating an equal probability of persistence compared with students who did not have financial need. Then in 1993-94—the year the state grant increase was implemented and federal loans were liberalized—students with all types of aid packages were more likely to persist than students who did not have financial aid.

The analysis indicates that the increases in both grants and loans had a positive effect on persistence in the public system. Students who received grants only and loans only were more likely to persist only after the increases. Thus students in public colleges in Washington were able to benefit from both the expansion of loans and grants in the early 1990s.

The linkages between student aid and equal opportunity are more difficult to establish. However, two additional findings merit consideration. First, in the logistic models (St. John, 1999) minority students (African Americans, Hispanics, and Asian Americans) were less likely than Caucasians to persist in 1991-92; African Americans were less likely than Caucasians to persist in 1992-93; and there were no differences in the probability of persistence for minorities in 1993-94. Second, the within-year persistence rate increased each year. These findings indicate that when grants are sufficient to be

[The Washington Grant Study] findings indicate that when grants are sufficient to be positively associated with persistence, the disparities in opportunities between the races are minimized.

TABLE 5
The Impact of Student Aid on Within-year Persistence
in Washington Higher Education, 1991-92, 1992-93,
and 1993-94: Summary of Delta-p Statistics for
Aid Packages Analysis (Compares Receipt of
an Aid Package to Not Receiving Aid)

	1991-92	1992-93	1993-94
Grants only	NS	NS	.0411
Loans only	NS	NS	.0375
Work only	NA	NA	NA
Loans and work	NS	NS	NS
Grants and loans	.0417	.0264	.0560
Grants and work	NS	NS	.0493
Grants, loans, and work	.0615	.0401	.0693

Notes: NA = Not available (insufficient cases for analysis); NS = Not significant (indicates equal probability). Delta-p statistics are presented when beta coefficients were significant at .01 or .05 levels.

Source: St. John, 1999.

positively associated with persistence, the disparities in opportunities between the races are minimized.

The Indiana Grant Study: Conducted in cooperation with the Indiana Commission for Higher Education, the study analyzed the effects of student aid on within-year persistence in 1990-91, 1993-94, and 1996-97 in public four-year colleges and universities (St. John, Hu, & Weber, 2001). Table 6 shows the results of this study.

In Indiana, there was a slight decline in state grants in 1993-94 compared to 1990-91, then a substantial increase in 1996-97. However, the percentage of students receiving state grants remained relatively stable. Then in 1996-97, the average amount of aid received by recipients of aid from state grant programs increased from \$1,058 in 1993-94 to \$1,664 in 1996-97. However, the total amount of grant aid awarded per student changed very little in 1996-97 due to the decline in federal grants. The analysis of trends in federal aid (St. John, Hu, & Weber, 2001) revealed a decline in Federal Pell Grants in 1996-97, a change reflected in the amount of grant aid students received. The bottom line from the state's perspective was that the substantial increase in state grants merely helped public universities hold ground given the decline in federal grants.

In addition, the trend analysis revealed that the percentage of students receiving loans grew, and the average loan increased from \$3,114 in 1993-94 to \$4,717 in 1995-96. Indeed, it appeared that students were paying for increases in tuition with increased debt. There was a clear transfer in the locus

TABLE 6
The Impact of Student Financial Aid on Persistence in
Indiana's Public System of Higher Education in the 1990s:
A Summary of Delta-p Statistics for Analyses of the Impact of Aid Packages

Packages	1990-91		1993-94		1996-97	
	Delta-p	Sig.	Delta-p	Sig.	Delta-p	Sig.
African Americans						
Grants only	NS		0.068	***	0.090	***
Loans only	NS		0.066	*	0.108	***
Grants and loans	0.060	*	0.100	***	0.110	***
Other package	NS		0.109	***	0.111	***
Hispanics						
Grants only	NS		0.063	*	0.073	*
Loans only	NS		NS		0.082	*
Grants and loans	NS		0.091	***	0.102	***
Other package	NS		0.072	*	0.115	***
Caucasians						
Grants only	NS		NS		NS	
Loans only	NS		NS		NS	
Grants and loans	0.048	*	NS		0.046	*
Other package	NS		NS		0.060	*
All Students						
Grants only	0.051	**	NS		NS	
Loans only	NS		NS		NS	
Grants and loans	0.053	**	0.061	**	0.059	**
Other package	0.077	**	0.060	*	0.091	***

Notes: * Beta significant at .05, ** Beta significant at .01, *** Beta significant at .001; NS = Not significant.
Sources: Statistics for "all students" were adopted from St. John, Hu, & Weber (in press). Statistics for racial/ethnic groups from Hu & St. John (in press).

of responsibility for funding higher education, from taxpayers (in the form of institutional subsidies) to students and families (in the form of debt), in Indiana as there was nationally.

The analyses of the impact of aid packages on persistence indicate that Indiana's investment in grants had kept aid at an adequate level (see Table 6). However, there has been an erosion in the effects of state grants because packages with grants were positively associated with persistence in 1990-91 and not in 1996-97. In addition, while there was a substantial increase in loans, packages with loans remained neutral. In combination these findings suggested that the state's investment in student aid was sufficient to minimize the negative effects of the shift from federal grants to loans.

There was also evidence in the Indiana studies that there was equity in opportunity across races, but that there may have been a slight erosion in the opportunity to persist for all groups. Specifically, in the analyses of trends in persistence and changes in the impact of aid (St. John, Hu, & Weber, 2000), reviewed above, minorities have had the same probability of

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persistence as all students. Further, in supplemental analyses of persistence by ethnic groups, it was apparent that each group was subject to the same trends (Hu & St. John, in press). Indeed, aid packages were more positively associated with persistence by the ethnic groups than for the whole population, but the persistence rates were declining slightly for each group. Thus, it appeared that when states provide sufficient grants, equity could be maintained.

Understanding the New Context: These studies reveal that states play a crucial role in keeping public colleges affordable. State policy plays a role in ensuring opportunity to attend and persist in public colleges. The two states examined here show that when states invest substantial sums in their grant programs, they can improve affordability or maintain it in the face of declines in federal student aid and rising tuition. However, most states do not invest sufficiently in student aid (Paulsen & St. John, 1997; Hossler, Schmit, & Vesper, 1997). Thus states need to consider ways of coordinating their finance strategies to ensure affordability.

Rethinking Educational Opportunity

The alternative perspective provides a more complete basis for assessing the effects of government financing strategies on affordability than do more common beliefs about net price. This review informs an understanding of the three policy questions.

1. What role did loans play in expanding higher education opportunity?

The alternative perspective considers the impact of loans as well as of grants. Research using this approach confirms that loans could help expand enrollment when affordability is constrained by increased tuition charges and reductions in grants. However, since these analyses reveal some of the complexities associated with loans, they indicate that the new emphasis on loans and tax credits for the middle class could further increase the disparities in participation rates (and persistence opportunities) between minorities and Caucasians. Specifically, the analyses reviewed above reveal that the middle class is more responsive to amounts of loans. Therefore a policy that relies on loans can enable more students to enroll, but it can also decrease equality in opportunity if grants are not sufficient.

The analysis of price response across diverse student populations helps further untangle how changes in finance strategies actually influenced the redistribution of enrollment in the 1980s and 1990s. Analyses of financial trends revealed that private colleges and universities invested substantially more of their own revenues in student grants (St. John, 1994).

Further, the analyses of the impact of student aid reviewed above reveal that private colleges have been better able to maintain affordability for their students than have public colleges.

Public colleges are more affordable in states that make substantial investments in student grant programs. Students enrolled in public colleges are more sensitive to tuition charges than are students in private colleges, and there is a concentration of highly price-sensitive students in community colleges. Clearly students with greater price sensitivity are being attracted to low-cost public colleges, especially community colleges. However, states that lack community colleges could face particularly great challenges to keep their public colleges affordable, especially if they do not make a substantial investment in grants. In this context, maintaining sufficient state investment in need-based grants is crucial to keeping public colleges affordable for state residents. Indeed, the two state-level case studies illustrate that a substantial state investment was needed in the 1990s to equalize opportunities for low-income and minority students compared with majority students.

As colleges have faced more pressure to leverage their aid strategies...they have been faced with tradeoffs between using aid to promote diversity and using aid to attract students who can pay a larger share of their college costs.

2. Has the balance of aid available helped equalize postsecondary opportunity for the poor?

Clearly these analyses indicate that the current emphasis on loans does not equalize opportunity. In the 1970s and early 1980s, the receipt of aid packages was sufficient to be positively associated with persistence. In the 1970s, need-based aid was concentrated on students with high need, which meant that it did help equalize opportunity. In the 1980s, a different picture began to emerge. Grant aid was no longer adequate for African Americans (Kaltenbaugh, St. John, & Starkey, 1999). Further, African Americans were more sensitive to tuition charges, which also helps explain the growing disparity in enrollment and persistence given the rise in prices. These developments were further exacerbated by federal efforts to respond to the growing affordability problem by expanding loans. Minorities were negatively influenced by loans in their persistence decisions.

The alternative approach also helps explain why educational choices have been more constrained for low-income and minority students. The reasons for this disparity are also complicated by the adaptive behavior of colleges. As colleges have faced more pressure to leverage their aid strategies to increase enrollment and maximize tuition revenues, they have been faced with tradeoffs between using aid to promote diversity and using aid to attract students who can pay a larger share of their college costs. There is a growing risk of segregation of low-income students in low-cost public colleges given that many elite public institutions are considering merit aid, following the model of private colleges.

There is a growing risk of segregation of low-income students in low-cost public colleges given that many elite public institutions are considering merit aid, following the model of private colleges.

3. *How can we improve the efficacy of loans and other forms of aid, if the goal is to expand educational opportunity for the middle class, while equalizing postsecondary opportunity for the poor?*

At this point we need a pragmatic, but workable, approach to improving efficacy of loans. Loans are not going to go away because they have proven effective in expanding educational opportunity for middle-class students who want the freedom to make educational choices that are in their own interests. However, loans are far from a perfect form of student aid. Too much debt can be a problem, both for persistence (Kaltenbaugh, St. John, & Starkey, 1999; St. John, 1989, 1990) and for repayment (Wilms, Moore, & Bolus 1987; Flint, 1997).

To help improve loans, three new student aid strategies should be considered in the next reauthorization of the Higher Education Act:

1. *A maximum level of debt should be established for low-income students who plan to enter mid-skill work and middle-class professions.*

The total amount of debt students can borrow from subsidized and unsubsidized loan programs is too high relative to earnings in some fields (Grubb, 1996). It is especially difficult for mid-skilled workers with some postsecondary education to maintain a reasonable standard of living and pay off their college debt (Grubb, 1996). There is a new emphasis on expanding postsecondary education as a solution to welfare and under-employment. Yet, the earning potential for the employment opportunities opened by the minimal postsecondary qualification are usually modest compared to the debt burden facing graduates of these programs.

The high level of debt required for low-income students to maintain continuous enrollment in four-year colleges is also problematic for students in nursing, teaching, and other majors that normally do not lead to high salaries. It is clear that minorities do have larger levels of debt than Caucasians and that the poor have to borrow more than the middle class (Hu & St. John, in press; Kaltenbaugh, St. John, & Starkey, 1999). With the inadequacy of grants in many states, debt is necessary to meet "unmet" need, as well as expected contributions. Given that middle class professions, like education and nursing, have limited earning potential, it is important to consider the levels of debt burden amassed in pursuit of a four-year degree in these fields. Thus, lower limits on the upper thresholds are needed, especially for the poor. We also need more research on the impact of debt on life after college, not just research on default.

2. *The federal government should develop a second-tier grant program that provides incentives for states to provide adequate grant aid, given the tuition charges by public colleges.*

Recent studies of state grant programs clearly indicate that substantial state investments are needed to keep public colleges affordable (St. John, Hu, & Weber, 2000) and many states are not providing a sufficient investment. The new wave of state-sponsored merit grants runs the risk of missing those who have the greatest need. We need a return to a more workable strategy. The federal government has a crucial role to play in keeping colleges affordable to the poor and apparently many states need incentives to achieve this goal.

Ideally, the federal government and states should split the costs of a "second-tier" grant, which would serve as a means of meeting financial need after loans for low-income students who enroll in public four-year colleges. Such a program could consolidate some of the smaller grant programs (e.g., State Student Incentive Grants and Federal Supplemental Educational Opportunity Grants) and add to the total amount of funding available as a supplement to Federal Pell Grants. Both states and the federal government realize tax revenues from their investments in student aid (St. John, 1994b). It should be possible to develop an appropriate cost-share strategy that provides incentives for states to provide tighter coordination between tuition and need-based grants. Further, states could develop cooperative agreements with private colleges that wanted to participate in a second-tier grant program that combined state and federal funds. These agreements would need to be structured so that institutions passed the savings attributable to lower institutional investment in grants on to students in the form of lower tuition.

It is time to reconsider the use of loan forgiveness as a policy instrument. It is not enough to be efficient...it is also important to be just and fair in the administration of aid.

3. The federal government needs to provide leadership in the development of a new generation of loan-forgiveness strategies.

Given the debt associated with undergraduate and graduate education, it has become more difficult to attract people to some middle-class professions, like teaching and nursing. It is time to reconsider the use of loan forgiveness as a policy instrument. It is not enough to be efficient in the methods that are used to fund student aid—and loans are more efficient economically. It is also important to be just and caring in the administration of aid. Unfortunately providing sufficient grant aid to meet the financial need of the poorest in society who enroll in college is no longer a generally accepted goal. States and the federal government should probably share the burden of reinvesting in need-based grants. However, if such a reinvestment does not occur, then something needs to be done to forgive excessive debt, especially for high-demand, middle-class professions. Perhaps state and national programs can be developed that will forgive debt (or pay it off), as part of an incremental process, based on years of service in education, nursing, or other vital professions. While the average salary for college graduates may be sufficient to pay off the average debt, the

salaries paid in some vital professions, like education and nursing, are not sufficient for this purpose.

While these suggestions may appear to some as an argument for "giving up" the commitment to equal opportunity, they actually support the argument for quite the opposite. The new Bush administration has proposed to increase the Federal Pell Grant budget, but it is unlikely that there will be sufficient new federal investment to restore equal opportunity. Given this fact, we must find new, workable ways to move toward this goal. It is also important to recognize that there is a growing need to expand access, which will cause further stress on federal budgets for grant programs. Legislative requirements for high "authorization" levels for the Federal Pell Grant program have had little effect on federal budgets during the past few decades. More specific requirements are needed. Legislation that structures federal-state agreements for matching on a second tier of grant aid should create more assurance that need-based grants will be funded at a sufficient level.

Further, loans will probably continue to be a substantial part of the federal strategy for student aid, which means that we need to deal with the problems created by these programs for mid-skilled and middle-class professions. Limiting debt burden, especially for programs that train mid-skill workers, can help. Forgiving debt (or repaying a portion of it) for people who choose and stay in vital fields like nursing and teaching also merits consideration. In combination, these suggestions provide an alternative way to address the challenge of restoring equal opportunity while expanding access.

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